JULY 4, 2016

TIME

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SAFEGUARDING THOSE WHO SAFEGUARDED OUR FREEDOM.

BARBARA BARNES
U.S. AIR FORCE VETERAN

Twelve percent of the adult homeless population are veterans. The New England Center and Home for Veterans works to combat this epidemic by providing housing and support services.

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What you said about ...

THE ORLANDO MASSACRE Our June 27 cover—which listed the names of every person fatally shot in Orlando, alongside the question "Why did they die?"—moved readers like George Zaver of Los Angeles, who wanted to see a focus on the victims and not the "madman killer." For Don Wigal of New York City, the cover's somber and stark aesthetic evoked an older TIME cover, which in 1966 asked a different question: *Is God Dead?*

> 'Religion teaches us that we are all the children of God. If you want to stop hatred, then stop hating.'
>
> **PATRICIA SHERMAN**, Southwick, Mass.

Some, like Jon Edwards of Novato, Calif., stressed the importance of language in characterizing the tragedy. The cover question was "insensitive," he said, for not making clear that the deaths in question were murders.

As for answering that question? Barbara Mann of Frederick, Md., wrote that the victims died because "we as a nation allow assault weapons on our streets." Others, like Don Vogel of Denver, said LGBT lives are "devalued and discounted by too many." And Donald Schmit of Fairfield, Iowa, blamed U.S. citizens for allowing an "inept Congress" to do nothing to stop such violence.

> 'Why did they die? Killed by assault-rifle bullets Congress refused to ban.'
>
> **CHARLES NAEF**, Hamilton, N.Y.

Meanwhile, Orlando resident Jan Cannon-Bowers was upset by the implication in the cover story, by Michael Scherer, that the nation might fail to come together in response to the tragedy. "Just look around, Mr. Scherer," she wrote, "at the tributes and outpouring of love and support from all across the country and the world."

NEW POWER Who are the most exciting, boundary-pushing young problem solvers of 2016? TIME and Rolex partnered in presenting 10 Next Generation Leaders, and TIME has profiled them in a series of videos and feature stories. Among the rising stars: Saran Kaba Jones *(left, above),* who started an organization to help people get access to safe water in her native Liberia; and Irene Kim *(left, below),* an outspoken, media-savvy Korean-American model and designer who has broken ground for Asian women in the fashion industry. To see the full list and watch the videos, visit **time.com/nextgenleaders**

Jones, 34, runs FACE Africa; Kim, 28, has 772,000 followers on Instagram

BONUS *TIME* POLITICS

Subscribe to TIME's free politics newsletter and get **exclusive news and insights from the 2016 campaign sent straight to your inbox.** For more, visit **time.com/email**

INCLUSIVE STYLE Go behind the scenes with TIME on *Suited,* an HBO documentary about a company making bespoke suits for gender-nonconforming customers. Daniel Friedman *(left)* and Rae Tutera try, as Tutera says, to help them "feel as good as they deserve to feel." Read at **time.com/suited**

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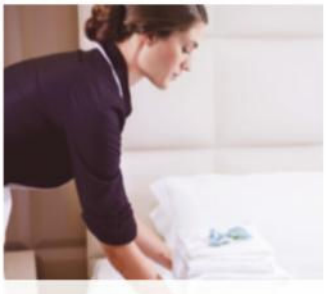

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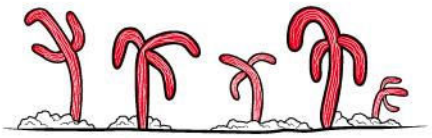
‘It’s gonna be like being at a Beyoncé concert.’

LEBRON JAMES, basketball star, on becoming an NBA legend, after his Cleveland Cavaliers won the league title for the city’s first major sports championship since 1964



118°F

High temperature in Phoenix amid a deadly heat wave in the southwestern U.S.

Coffee
Cuban coffee will soon be imported to the U.S.

GOOD WEEK
BAD WEEK

Soda
Philadelphia passed a tax on sugary and diet drinks

‘WE ARE NOW LIVING ON MADURO’S DIET: NO FOOD, NO NOTHING.’

LUCILA FONSECA, 69-year-old resident of Cumaná, Venezuela, which has been crippled by food shortages that have sparked protests against Venezuelan President Nicolás Maduro

100,000

Number of chickens Bill Gates is donating to poor countries to stimulate local economies

1,200

Height, in feet, of a proposed thrill ride above New York City’s Penn Station

‘Unite to fight against the hatred that killed her.’

BRENDAN COX, whose wife, British legislator Jo Cox, was shot and killed by an attacker with alleged neo-Nazi sympathies a week before the U.K.’s controversial Brexit vote

‘The pain never goes away … It has become a part of me.’

IRENE WEISS, Auschwitz survivor, after the conviction of 94-year-old former Nazi SS guard Reinhold Hanning for 170,000 counts of accessory to murder; Weiss was a witness at his trial in Germany

‘America is a great power—today, probably the only superpower.’

VLADIMIR PUTIN, Russian President, vowing to work with the U.S. regardless of who’s elected President

SOURCE: NEW YORK TIMES

COX: WEISS: AP; GETTY IMAGES (4); ILLUSTRATION BY BROWN BIRD DESIGN FOR TIME

The Brief

'SHE LOVED CHILDREN, NOT JUST HER OWN BUT EVERYONE'S.' —PAGE 17

Putin has complained that the Olympic ban on Russian athletes is "unjust and unfair"

GETTY IMAGES

PHOTOGRAPH BY MIKHAIL SVETLOV

RUSSIA

In sports and more, Moscow is bending the rules to get ahead

By Simon Shuster

ON JUNE 17, A FEW DAYS AFTER Russian soccer fans began running riot at the European championships in France, Vladimir Putin was asked to comment on his countrymen's behavior. With a half-smile, the Russian President played dumb. "I truly don't understand how 200 of our fans could beat up several thousand English," he told audience members at an economic forum in St. Petersburg, where they responded with laughs and applause.

His point was rhetorical. With enough savagery, weaponry and calculation, it is easy to imagine how a few dozen Russian soccer hooligans could rout a far bigger group of rivals who hadn't expected a militarized brawl. This, according to French authorities, is exactly what happened. Dozens of Russian fans were arrested and deported as a result. Three have been sentenced to prison terms in France. Among the dozens who were injured, two British fans were left in comas.

In the days that followed, the European press was full of speculation that the Kremlin had approved of the violence or even orchestrated it. The evidence was thin, and Moscow denied any involvement. But what it couldn't deny was the pride that these attacks inspired back home. One senior Russian lawmaker, Igor Lebedev, who also serves as deputy chairman of the Russian soccer federation, urged the hooligans on Twitter to "keep it up." The phrase they chanted during the violence—*Russkie Vperyod!* (Forward, Russians!)—happens to be emblematic of the brand of throwback

patriotism that emerged from Putin's most recent run for re-election, in 2012.

Ahead of that vote, the Kremlin decided that the only way to galvanize a weary electorate was to play on the old fears and prejudices of the Cold War. It worked: Putin's popularity rose along with animosity toward the West. Ever since, a series of crises in Russia's relations with the West have helped the state's powerful propaganda channels nurture a national siege mentality, portraying Russia as the victim of a bullying and treacherous West whose primary aim is to bring the country to its knees.

This campaign has also indicated that Russia's moral compass is off course. A bit of treachery, if useful in outwitting a more powerful rival, has been portrayed as perfectly permissible, and the Kremlin has provided plenty of examples of its effectiveness. In Ukraine, Russian troops occupying the region of Crimea in 2014 simply took the markers off their uniforms and pretended to be local rebels. In Syria, Putin has claimed that his warplanes were bombing ISIS; in reality, they were often attacking U.S.-backed rebel groups in order to keep the regime of his ally Bashar Assad in power. As the Russian saying goes, "If you don't get caught, you're not a thief."

The same seems to apply to the Russian world of sports. The Russian government allegedly ran a systematic doping program during the Winter Olympics in Sochi in 2014—when its athletes topped the medal count. Only this year, after numerous whistle-blowers and official investigations exposed the extent of the Olympic cheating, has Moscow admitted that it has a problem with athletes' use of performance-enhancing drugs. The Kremlin still denies allegations of a state-run doping conspiracy, while Russia's sports minister Vitaly Mutko has said the government is doing everything possible to keep athletes clean.

Nonetheless, on June 17, the world governing body of track and field decided to ban all Russian athletes from the Rio Games, a decision later backed up by the International Olympic Committee. Putin objected to the blanket ban. "If some of the members of your family have committed a crime," he asked, "would it be fair to hold all the members of the family liable?"

Maybe not all of them. But the head of a family, like the head of a state, is morally liable for its corruption. And over the past few years, Putin's actions have shown that Russia is willing to use dirty tricks and even violence to gain an edge over its enemies.

That doesn't mean he ordered Russian athletes to cheat or Russian soccer fans to beat people up. But he did set the tone for a shrill campaign of anti-Western propaganda, one that has blurred the lines between patriotism and pugnacity, between fair play and the desire for victory at any cost. ◻

TRENDING

WEATHER

Temperatures in the southwestern U.S. **hit record highs** at the peak of a heat wave around the first day of summer (June 20). It was over 120°F in California cities Palm Springs and Thermal, and 118° in Phoenix on June 19. At least four deaths were blamed on the extreme weather.

ECONOMY

Federal Reserve Chair Janet Yellen warned of **"considerable uncertainty about the economic outlook"** at a June 21 Senate Banking Committee hearing but added that "the odds of a recession are low." She said she would be cautious about future interest-rate hikes.

TRAVEL

The African Union will give heads of states new electronic passports **allowing them to move across Africa's 54 countries without visas.** If the pilot scheme is a success, the A.U. wants to extend it to all African citizens by 2020.

CHINA

Bookseller's tale shocks Hong Kong

Lam Wing-kee, one of five Hong Kong booksellers who vanished last year before turning up in Chinese custody, broke his silence on June 16 after eight months in detention. His revelations have enraged the territory. *—Nash Jenkins/Rishi Iyengar*

PULP NONFICTION

The five booksellers worked at Causeway Bay Books, a dingy store in Hong Kong's most bustling commercial district that's famous for selling lurid books about the private lives of mainland Chinese politicians. Four of the booksellers are still believed to be in mainland China, but Lam was freed temporarily on bail.

GOING PUBLIC

Lam had been expected to return to the mainland but defied Chinese authorities by telling the press how he had spent months in solitary confinement under constant surveillance. Protesters marched from the bookstore to Beijing's government outpost on June 18 to demand justice.

CHINA RISING

Lam's revelations further underscore growing concerns over Chinese encroachment on Hong Kong's autonomy and democratic freedoms, granted to the territory after Britain returned it to China in 1997. "I think it shows that Hong Kongers should be concerned for their security," the bookseller told TIME.

DIGITS

$9 million

Donations collected as of June 22 by the city of Orlando that will be distributed directly to survivors of the Pulse club shooting and to victims' families

WEATHER, CHINA: AP; ECONOMY, TRAVEL: GETTY IMAGES; DIGITS: REUTERS

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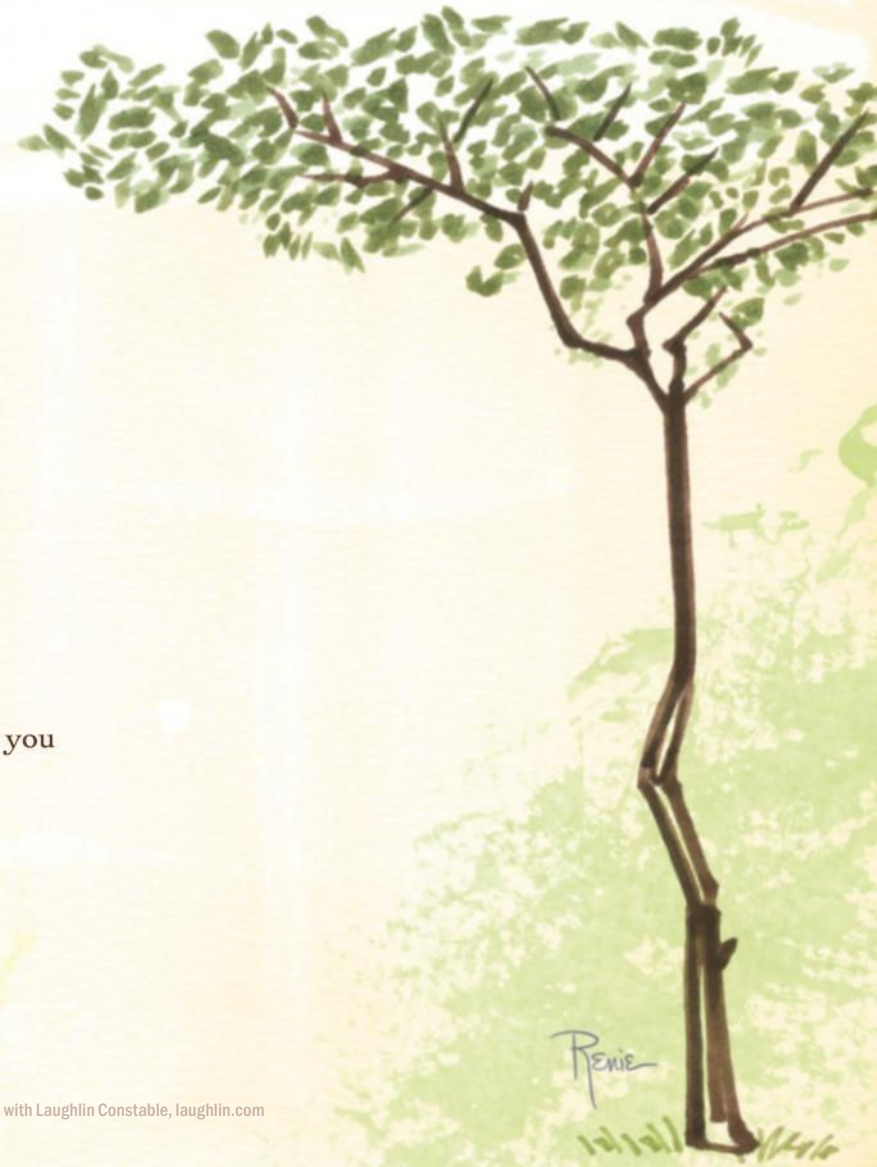

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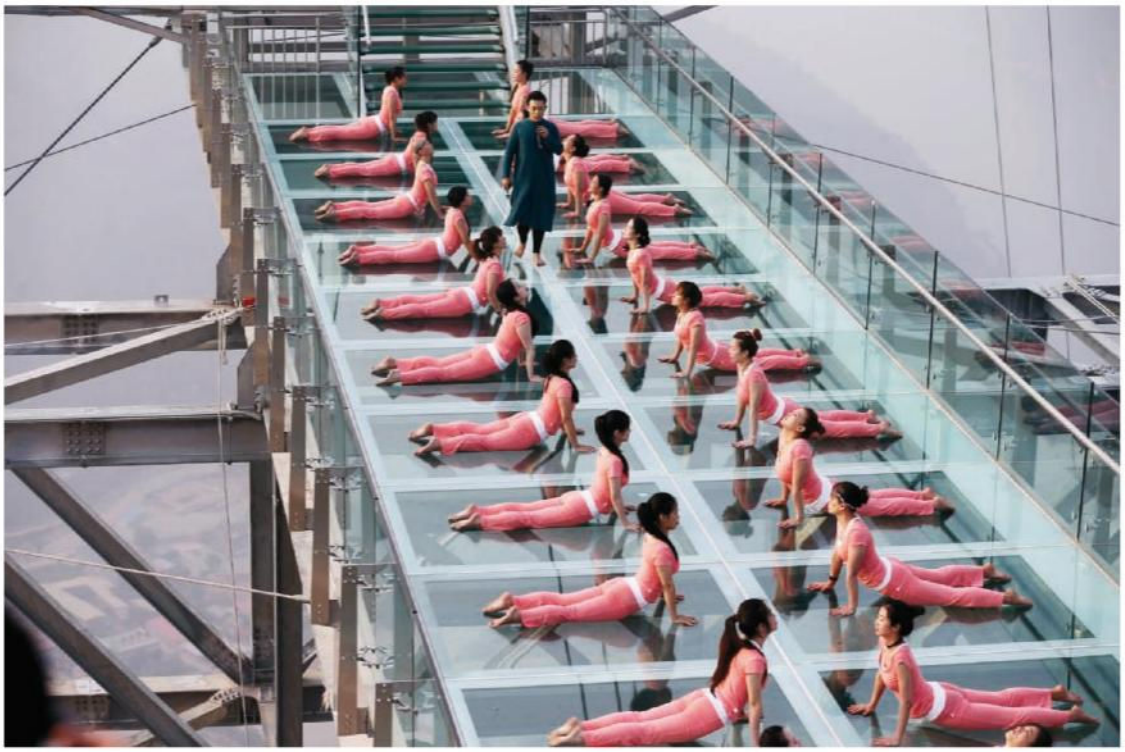


HIGHER STATE Yoga enthusiasts practice the cobra pose on the large glass viewing platform above Shilin Gorge on the outskirts of Beijing on June 20 to mark the International Day of Yoga the following day. The annual event, initiated by Indian Prime Minister Narendra Modi, was adopted as a resolution by the U.N. in 2015. *Photograph by China Daily—Reuters*

ENTERTAINMENT

A new fight over digital music

MORE THAN 170 ARTISTS, INCLUDING Taylor Swift and Paul McCartney, are joining record labels, music publishers and others to urge Congress to reform the Digital Millennium Copyright Act (DMCA), which in part protects Internet companies like YouTube—the labels' biggest target—from getting sued when users upload copyrighted content. Here's what's at stake:

MONEY Google, which owns YouTube, says it has paid more than $3 billion to the music industry over the years (thanks to revenue-sharing deals) and helped propel its artists, like Justin Bieber, into megastardom. But artists and labels say they're being shortchanged, since sites like YouTube sell ads against user videos that feature their copyrighted content.

LIABILITY Musicians argue that it is too easy under the DMCA for users to upload stolen versions of their work. But YouTube says it has several anti-piracy tools, including one that prevents known copyrighted material from being uploaded and another that asks rights holders if they want a cut of a video's advertising revenue.

INNOVATION Beyond YouTube, the DMCA has helped protect services such as Facebook and Snapchat from the mire of litigation during their early stages. Though many agree that the 20-year-old law needs reform, tech companies worry that a change to its liability clause could have unforeseen consequences.

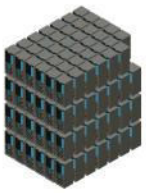
—ALEX FITZPATRICK

‹ Swift is one of more than 170 artists who signed a petition to reform the DMCA

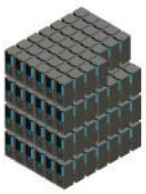
DATA

SPEEDY SUPER-COMPUTERS

China now has more of the world's fastest commercially available supercomputers than the U.S., according to a new ranking. Here's how various countries compare, by the number of machines they build:



167
China



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TRENDING

BUSINESS
Plane manufacturer Boeing **signed a tentative agreement to sell 100 aircraft to Iran Air** for up to $25 billion in total. If approved by regulators, the deal would be the largest one a U.S. company has made with an Iranian firm since the 1979 revolution.

COURTS
A week after the Orlando massacre, the worst mass shooting in recent U.S. history, the **Supreme Court rejected challenges to assault-weapons bans** passed in Connecticut and New York in the aftermath of the 2012 shooting at a Newtown, Conn., elementary school.

NATURE
A **volcano in Iceland nicknamed the Gateway to Hell is poised to erupt** "at any moment," according to a University of Iceland vulcanologist. Professor Pall Einarsson, who based his forecast on pressure readings, said it could cause a "major disaster."

THE RISK REPORT

India's success is built to last

By Ian Bremmer

IN THE WORLD OF CENTRAL BANKERS, Raghuram Rajan is a rock star, and the abrupt announcement on June 18 that he will depart the Reserve Bank of India in September came as a shock for investors. Some experts suspect that the charismatic, outspoken former IMF chief economist was forced out for political reasons and consider his departure a disaster for his country's economy.

But there's no need to raise alarms for India. Early reports suggest his successor will be a credible figure with a distinguished résumé, and all signs point to continued policy progress on India's most pressing problems.

To appreciate India's positive outlook, compare the country with its emerging-market peers. In China, growth has slowed dramatically in recent years, the debts of local governments and Chinese companies have ballooned, and the central government is struggling to implement reform. In Russia, deep dependence on energy exports, endemic corruption, Western sanctions and the Kremlin's determination to blame foreigners for all serious problems prevent the political and economic reforms that might finally make the country's economy more dynamic. Brazil faces its deepest recession in decades, a widening political scandal, the Zika virus and an Olympic Games for which the country doesn't seem prepared.

India remains the emerging-market world's most positive story, in large part because Prime Minister Narendra Modi and his Bharatiya Janata Party (BJP) lead the country's strongest government in 30 years. Modi has lowered barriers to foreign investment across sectors as diverse as defense, railways and real estate. India became the world's leading recipient of greenfield foreign investment in 2015. By streamlining regulation and cutting red tape, Modi's government has made it easier to do business at both the national and the state level.

> Modi has made it easier to do business at both the national and the state level

Opposition parties still hold a majority in India's upper house and have stalled legislation on sensitive subjects like labor and land reform. But a plan to dramatically simplify the tax system will probably pass this year, and Modi has accomplished more without Parliament. The BJP has also pushed state governments to adopt reforms of their own.

These gains are likely to last, but two longer-term risks deserve particular attention. India faces serious water shortages, and its fragmented legal systems make it hard to coordinate water management. In addition, rapid economic growth isn't yet generating enough jobs for the million people who enter India's workforce each month.

But Modi has set India on a promising path—and it will take more than a central-banking rock star leaving the stage to knock the country off course. ◻

BY THE NUMBERS

The world's dispossessed

In 2015 the global number of refugees, asylum seekers and internally displaced people reached 65.3 million, the highest total since records began. Here's how the numbers break down. —*Tara John*

51%
The share of the world's refugees in 2015 who were under the age of 18. The UNHCR reported a record 98,400 asylum requests from unaccompanied or separated minors.

172,700
The number of claims for asylum submitted in the U.S., the second largest total in 2015 after Germany. The majority fled organized crime, gang violence and cartel activity.

32,000
The number of refugees who gained citizenship in 2015 in 28 countries. Some 25,900 were in Canada, which accounted for 81% of the naturalizations last year.

BUSINESS: EPA; COURTS; BY THE NUMBERS: REUTERS; NATURE: GETTY IMAGES

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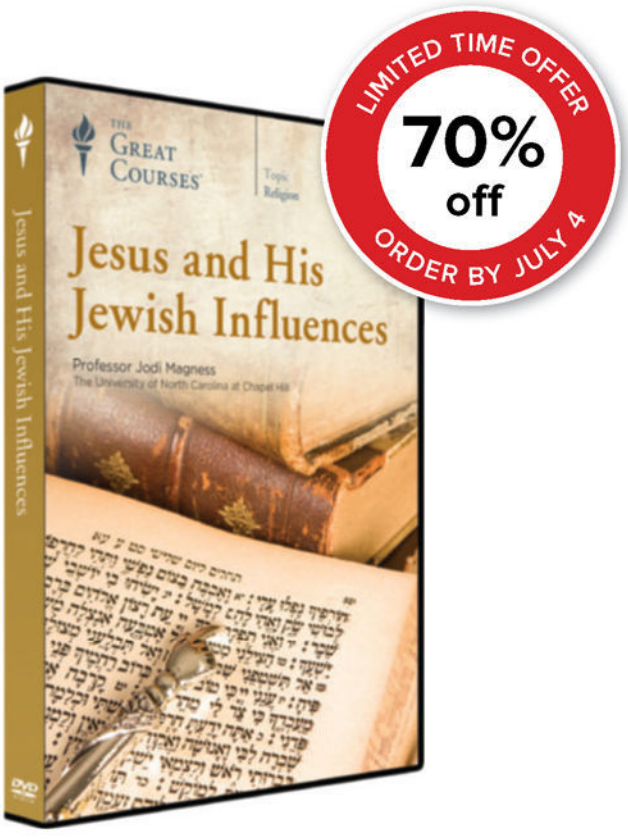

Unearth the Jewish Roots of Jesus's Teachings

For anyone interested in the profound impact Jesus had on the world, it's important to realize that his actions and teachings didn't emerge from a vacuum. Rather, they were the product of a fascinating dialogue with—and reaction to—the traditions, cultures, and historical developments of ancient Jewish beliefs. In fact, early Judaism and Jesus are two subjects so inextricably linked that one cannot arrive at a true understanding of Jesus without understanding the time in which he lived and preached.

Crafted by acclaimed archaeologist and biblical scholar Jodi Magness of The University of North Carolina at Chapel Hill, this fascinating course approaches the subject of Jesus from a historical, rather than scriptural, perspective; one rooted in the study of ancient texts and archaeological discoveries. Discover hidden insights into how the tumultuous events of Jewish history shaped an individual whose legacy endures to this day.

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7. Alexander the Great's Impact on the Jews
8. Jews and Greek Rule: The Heliodorus Affair
9. Desolating Sacrilege and the Maccabean Revolt
10. Apocalyptic Works and the "Son of Man"
11. Jesus's Jewish Lineage
12. Was Jesus a Pharisee?
13. Jewish Ritual Purity: The Sons of Light
14. The Dead Sea Scrolls: Earliest Hebrew Bible
15. Was Jesus an Essene?
16. The Hebrew Scriptures and the Septuagint
17. The Reign of Herod the Great
18. Pontius Pilate: A Roman Prefect
19. Anarchy in Judea
20. Jesus's Prophecy: Jerusalem's Destruction
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Milestones

DIED
Anton Yelchin, 27, film and TV actor who played Chekov in the rebooted *Star Trek* movies, in a car accident. He also had roles in *Terminator Salvation* and, most recently, *Green Room.*

ANNOUNCED
By the National Oceanic and Atmospheric Administration, that **the world's coral reefs are experiencing the "most widespread, largest bleaching event ever."** Triggered by rising ocean temperatures, this bout has killed one-third of all coral in some places since 2014.

ELECTED
Virginia Raggi, 37, as **Rome's youngest and first female mayor.** The lawyer belongs to Italy's anti-establishment movement Five Star, which also won the mayor's race in Turin and 17 smaller towns in runoff elections.

WON
By golfer Dustin Johnson, **the U.S. Open,** marking the 32-year-old's first major title. A controversial call at the 12th tee almost cost him a stroke, prompting golf's governing body to apologize for the "distraction."

Cox, a rising star in Britain's Labour Party, is credited with playing a key role in the U.K.'s decision to let in more child refugees

DIED

Jo Cox
British lawmaker

By Justin Forsyth

IT'S HARD TO BELIEVE THAT MY friend Jo Cox had been in Parliament for only a year when she was killed on June 16 at age 41. She had already made a huge impact championing the issues of refugees and Syria, and she would have had an amazing political career. I think she could have gone to the very top.

Before she was Labour Party MP for her hometown constituency, Batley and Spen, she was a policy head at Oxfam who made sure humanitarian aid was directed toward Darfur and the Democratic Republic of Congo. She also worked with the Maternal Mortality Campaign. When Jo picked up that issue, few organizations were campaigning on it, and people like Melinda Gates have credited her with making it a global issue. Her efforts helped lead to a big reduction in the number of mothers who have died during childbirth over the past decade.

I was director of policy at Oxfam when Jo joined, and I remember many, many meetings where people from different organizations would be strongly disagreeing and it would be Jo who'd bring them together. The way she tried to achieve change was to unite people across the political spectrum, and in a way, that is her greatest legacy. In Parliament, Jo was the spirit of the campaign to allow more child refugees into the U.K. as huge numbers came to Europe. After she mobilized people across all political divides, the government agreed to let in more unaccompanied children. She loved children, not just her own but everyone's.

She was always trying to bring people together in her personal life too. She managed to get everyone from ministers to MPs and even the chair of a bank to make the journey to her annual summer-solstice party at her cottage on the Welsh-English border. We'd talk about the big issues, but we also laughed and danced in the remote countryside. She had this amazing zest for life.

Forsyth is deputy executive director of UNICEF and a former adviser to Prime Ministers Gordon Brown and Tony Blair

HEALTH

The rise of alt medicine

A new federal report revealed that Americans spend about $30 billion a year on nontraditional health care, such as yoga and ginkgo biloba *(above).* That's a fraction of overall U.S. health care spending, but it still marks an all-time high. A primer on some of the lesser-known drivers:

QIGONG
An ancient Chinese practice to aid relaxation. It integrates physical movements, mental focus and deep breathing.

OSTEOPATHIC MANIPULATION
Uses "healing touch" to restore function and alleviate pain. Techniques include stretching and applying gentle pressure to aid muscles and joints.

HYPNOSIS
An altered state of consciousness triggered by relaxing the body and focusing on an object or idea. It's sometimes used to treat pain and stress.
—Alexandra Sifferlin

COX: USA TODAY NETWORK/SIPA USA; HEALTH: GETTY IMAGES

The new reasons to exercise

By Alexandra Sifferlin

IT'S A CRUEL REALITY THAT EXERCISING is not a reliable way to lose weight and keep it off. But that doesn't mean you should abandon the effort. As little as 15 minutes of exercise a day confers benefits that reduce the risk of death from all causes, a recent study found. Here is what other new research has to say about the benefits of regular exercise.

1 IT HAS MIND-BODY BENEFITS

A survey published in June of more than 500 respondents who practice yoga found that while people initially tried it for exercise and stress relief, most say their reason for practicing changed as they continued. **For 37% of yogis, spirituality became the primary reason for keeping up their practice.** "I think because yoga is such a mind-body practice, people find themselves being more relaxed and more mindful," says study author Crystal L. Park of the University of Connecticut. "They start going back for those things. It's clearly something people deeply resonate with."

2 IT IMPROVES MEMORY

For more than a decade, researchers have connected exercise to better brain health over time. But a new study found that just a single session of exercise can improve memory retention in the hours that follow. The report, published in the journal *Current Biology,* suggests that exercising **four hours after learning a task can help people remember** that task over the long term. Experts speculate that exercise triggers the release of neurotransmitters in the brain that lead to the creation of certain proteins that encourage memory retention.

3 IT INCREASES ENERGY

In a report published in June, men who cycled for 20 minutes experienced a **166% increase in self-reported energy levels,** compared with a 15% increase when they sat and did nothing for the same amount of time. The study size was small, but it's not the first to suggest exercise as a drug-free way to alleviate symptoms of fatigue. "If people need a reason to work out, the energy boost is a worthwhile one," says study author Patrick J. O'Connor of the department of kinesiology at the University of Georgia.

4 IT MAY STAVE OFF DEPRESSION

Working out regularly might prevent depression, not just assuage it, according to a study published in February 2015. Researchers looked at 10 years' worth of data and found that women who were meeting the current guidelines for exercise—2 hours and 30 minutes a week of moderate-intensity exercise—reported about **50% fewer depressive symptoms** than women who didn't exercise as much. And the more the women reported exercising, the less likely they were to have signs of depression.

5 IT CAN CURB CRAVINGS

Exercise may be the key to keeping your appetite in check. A study published in April found that people who exercised for 15 minutes after doing mental work—like the work we all do at the office each day—ate **100 fewer calories** than people who did mental work and then remained sedentary. "Exercise has the ability to increase available fuel sources in the body that may signal to the brain, 'Here is the energy source I need. I don't need to replenish it through food,'" says study author William H. Neumeier of the University of Alabama at Birmingham.

6 IT REDUCES RISK OF SERIOUS CANCERS

To better understand the role of fitness in cancer prevention, researchers at the National Cancer Institute analyzed data from 1.4 million people who reported their physical-activity levels over a period of 11 years. People who were more active had a **20% lower risk of certain serious cancers,** including cancer of the esophagus, lung, kidney, stomach and endometrium, according to a study published in May. This builds on earlier research showing that exercise can significantly reduce the risk of colorectal and other cancers.

ILLUSTRATIONS BY QUICKHONEY FOR TIME

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Motto offers millennial women expert advice by and from the world's most influential people.
PHOTO BY
CAVAN IMAGES

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LightBox

Walking on water

People stroll on a fabric walkway connecting two islands in Italy's Lake Iseo with the shore on June 18. The nearly 2-mile installation, *The Floating Piers,* was first conceived by the artist Christo with his late wife Jeanne-Claude in 1970. It was assembled using 220,000 high-density polyethylene cubes and is open to the public through July 3.

Photograph by Chiara Goia

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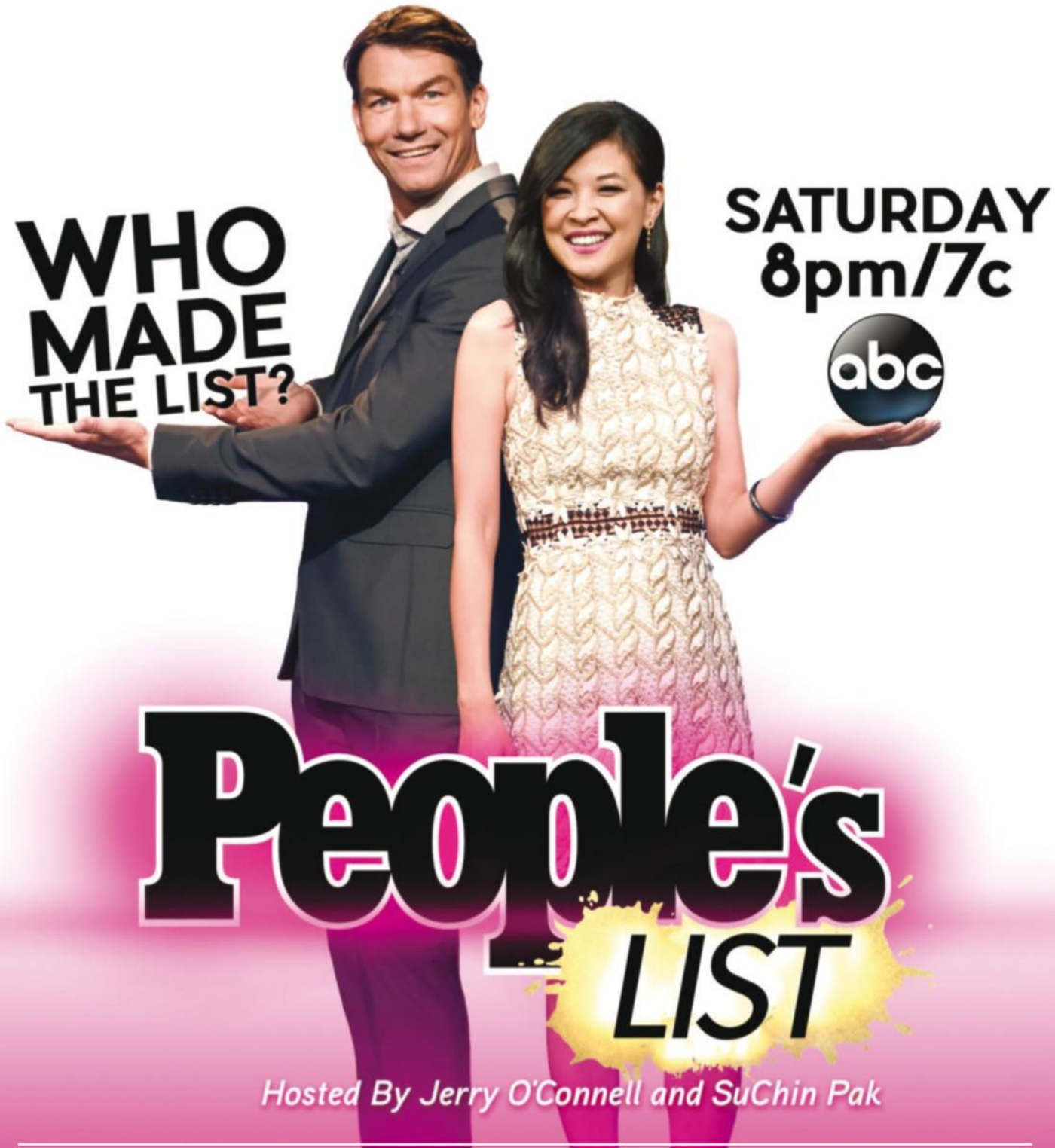


Counting down the *HOTTEST, BUZZIEST, MOST FASCINATING* people on the planet.

It's what you'll be talking about all week!

The View

'FISHES ARE NOT MERELY ALIVE—THEY HAVE LIVES.' —PAGE 24

Groups in more than 20 major U.S. cities are trying to stop hurt people from hurting others

GETTY IMAGES

CRIME

Can we curb gun violence by treating it like a disease?

By Josh Sanburn

IN 2014, A WEEK BEFORE THANKSgiving, a 56-year-old man was shot in the Crown Heights neighborhood of Brooklyn. Within hours, several of his family members gathered at the crime scene, discussing retribution. They had suffered; now, they wanted others to pay for their pain.

That's when David Gaskin showed up. He gently probed the family, asking how they were feeling and why they might retaliate. He offered sympathy and counsel, informed by his experiences in prison and as a former gang member. And he repeatedly asked for verbal commitments that they wouldn't strike back, at least not then. Some agreed—and he promised to follow up.

Gaskin, 34, isn't a police officer or a psychologist; he's an outreach worker for a nonprofit initiative, Save Our Streets (SOS). But he and others like him may well be instrumental in curbing America's gun-violence epidemic on a local level, especially as Congress keeps declining to pass federal gun control.

The key is their unorthodox approach. Unlike cops, who arrest criminals, or coalitions, which raise money to change laws, programs like SOS—now in Oakland, Calif., New Orleans and at least 20 other major U.S. cities—approach gun violence like doctors approach disease: as a contagious bug that must be diagnosed, contained and treated. "Hurt people hurt people," explains Yvette Simpson, who is spearheading an SOS-like initiative in Cincinnati. And at a time when the

PHOTOGRAPH BY RON CHAPPLE

American Medical Association (AMA) is calling gun violence a public health crisis, these groups say it's paramount to manage that pain. It just might prevent the next local shooting, or even the next Orlando.

The idea that violence can be "cured" originated in the 1990s, when Gary Slutkin, an epidemiologist, moved to Chicago. He soon realized that the city's crime rates spiked in geographic clusters, like the viruses he had treated in Somalia and Uganda, and that those who experience violence have a greater likelihood of committing it, meaning it's contagious. (Per one recent study, people exposed to violent behavior as children or adolescents were 31.5 times more likely to engage in chronic violent behavior as adults than those who were not.)

So in 2000, Slutkin started CeaseFire, a group that tapped people with connections to high-crime areas, like Gaskin, to serve as "violence interrupters." After receiving tips from community members, they reached out to people who had experienced a violent episode, mediated ongoing conflicts and worked with high-risk residents to change their behavior—much in the way doctors treat outbreaks of tuberculosis and cholera.

It worked. Within a year, Slutkin's approach led to a 67% decrease in shootings in one of Chicago's most violent areas. Since then, "cure violence" initiatives, funded by a mix of city, state, federal and private money, have led to similar results in other cities—notably in four high-crime Baltimore neighborhoods, where there were as many as 56% fewer murders and 44% fewer shootings from 2007 (when the first program began) to 2010.

There are drawbacks to the cure-violence approach, though. For one thing, its efficacy is limited by the fact that Congress hasn't funded gun-violence research since 1996, thanks in part to pressure from the National Rifle Association. "We're just sticking our heads in the sand," says Andrew Gurman, president of the AMA, of the gridlock. Chicago police have also criticized CeaseFire staff for not sharing information or involving them enough in the process, and said some outreach workers were getting into trouble. That led Mayor Rahm Emanuel to slash the program's budget in 2013.

Still, in Crown Heights, which has seen gun violence drop significantly since SOS began in 2009, program head Amy Ellenbogen argues that it's an asset to have more than one entity working to end violence, especially gun violence. "It is a social problem that has so many root causes," she says. Simpson, of Cincinnati, agrees. "Law enforcement is part of" the solution, she says, but it takes more than police work "to prevent somebody from shooting a gun." □

VERBATIM

'This … allows the police to stop you on the street, demand your identification and check it for outstanding traffic warrants—even if you are doing nothing wrong.'

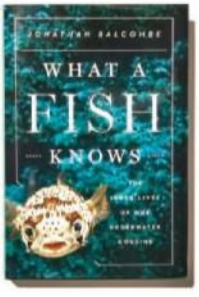
SONIA SOTOMAYOR, U.S. Supreme Court Justice, in a dissent after the court ruled 5-3 in *Utah v. Strieff* that evidence found during unlawful police stops could be used in court, so long as officers also found an outstanding arrest warrant

SOTOMAYOR: AP

BOOK IN BRIEF

The secret lives of fish

EVEN SOME VEGETARIANS OPPOSED TO animal cruelty say it's fine to eat fish, citing their lower brain capacity. But in his new book, *What a Fish Knows: The Inner Lives of Our Underwater Cousins,* Jonathan Balcombe argues that there is a huge moral distinction "between a cod and a cucumber." To illustrate his point, Balcombe cites several studies about how fish live. Among the findings (some of which are disputed): rainbow trout can probably feel pain; carp can learn to avoid bait for up to three years after getting caught and released; cichlids engage in play; frillfin gobies can memorize and recall the topography of a tide pool 40 days later; and orange-dotted tuskfish can use tools to uncover and open buried clams. "Fishes are not merely alive—they have lives," writes Balcombe, who also serves as director of animal sentience at the Humane Society Institute for Science and Policy. Knowing that, he concludes, "it is time for a paradigm shift in how we think about and treat [them]."



—SARAH BEGLEY

CHARTOON

Personal commemorative stamps

POSTAGE 25
gave up on screenplay
caught chicken nugget before it hit the ground
didn't name cat "Sir Fluffington"
finally threw out VHS copy of Space Jam
refrained from freestyle rapping
saw guy on the bus who looked like Putin
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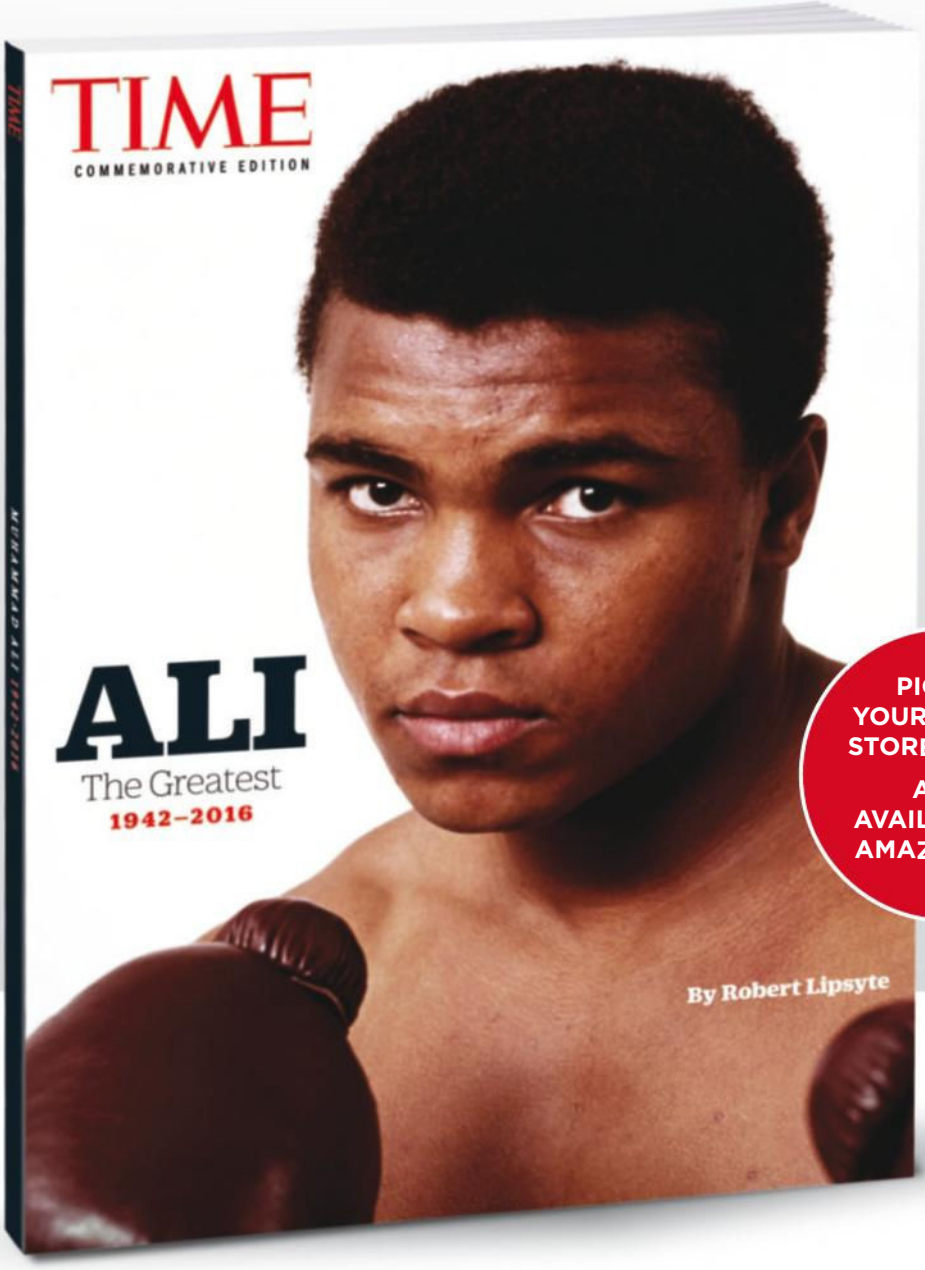

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BIG IDEA

Buildings that power themselves

Want to glimpse a city of the future? Look no farther than Astana, in oil-rich Kazakhstan, where a new development is rising to host Expo 2017, a global conference on clean energy. Using solar panels and wind turbines, the 430-acre (174 hectare) campus will produce a quarter of its own electricity, eventually cutting its CO_2 emissions by more than 6,000 tons per year. Its buildings are also designed to be über-sustainable, featuring roofs angled for maximum sun exposure and curved facades that repel snow. "It's not an experiment," says architect Gordon Gill, whose Chicago-based firm conceived the project. "It's real." *—Julie Shapiro*

QUICK TAKE

The liberal hypocrisy of 'free speech'

By Kimberley Strassel

LIBERALS TEND TO THINK OF THEMSELVES as open-minded and supportive of free speech. But recent examples show otherwise—and prove that many on the left are not above using intimidation and harassment to silence dissenting voices.

Consider the fight against California's Prop 8. In an attempt to stymie the 2008 amendment, which aimed to preserve traditional marriage, some activists posted its supporters' names and addresses to a public map—which others reportedly used to key their cars, blockade their businesses and leave threatening phone messages. Several prominent Californians, including Mozilla CEO Brendan Eich, resigned from their jobs after being excoriated online. And the backlash likely dissuaded some donors from supporting a political cause ever again. Moreover, in 2012, a liberal Wisconsin prosecutor probed conservative groups and alleged that they had illegally coordinated with Governor Scott Walker's campaign. The state supreme court stopped the investigation, saying it had targeted "citizens who were wholly innocent of any wrongdoing"—but not before the prosecutor's team had confiscated email and raided homes, among other tactics.

There's no excuse for such behavior, on either side. Protecting the First Amendment requires all of us to stand up to bullying and defend our fundamental right to free speech.

Strassel is a Wall Street Journal *columnist and the author of* The Intimidation Game: How the Left Is Silencing Free Speech

DATA

SHRINKING STATES

The U.S. population grew to 321,418,820 people last year, up less than 1% over 2014, per new census figures. But that growth was not shared equally. Here are the states and territory that saw the largest drops.

−0.07%
MAINE
Even with the drop, Maine's population of 1,329,328 is about a thousand more than it was five years ago.

−0.11%
CONNECTICUT
The Nutmeg State's loss of 3,876 people was mostly a result of people moving away.

−0.17%
ILLINOIS
Illinois's population shrank by more than 22,000 people, 10,488 from Cook County alone.

−0.25%
WEST VIRGINIA
As in Maine, more people are dying than being born in the Mountain State; its current population is 1,844,128.

−1.7%
PUERTO RICO
The island's population shrank by 60,706 people amid its financial struggles, overwhelmingly from migration.
—Belinda Luscombe

ADRIAN SMITH + GORDON GILL ARCHITECTURE

WHAT PULLED HAMMY?
Advil
Advil MAKES PAIN A DISTANT MEMORY.
Use as directed.
© Pfizer 2016

CAMPAIG

BOLD, BRASH AND U

DONALD TRUM

By Alex Altman a

PHOTOGRAPH BY DAMON WINTER

UNDER RENOVATION

MP HITS RESET

and Zeke J. Miller

Campaign signs await attendees at a Trump rally at the Fox Theatre in Atlanta on June 15

"Let Donald Trump Be Donald Trump," read the plaque on his campaign manager's desk. Put the master showman before a frustrated audience and watch him pitch a totally new kind of product. The man was magic.

At least it seemed that way for months: the more Trump broke the rules, the better it seemed to work. Insult a war hero? Congrats: you win the news cycle. Float a religious test for immigration? Trump never claimed to be politically correct. Suggest his opponent abetted a rape or murder? He's just sayin'. The Trump Show won the most votes in the history of Republican primaries. So when it came time to pivot to the general election, he wasn't likely to rewrite the script. "You think I'm going to change?" Trump said on May 31, five days after securing enough delegates to clinch the nomination. "I'm not changing."

Except now he must. Since that boast, Trump has plunged from dead even with Hillary Clinton to 6 points down in national surveys. During a few days in June, he attacked the fairness of a federal judge on the basis of ethnicity, delivered a widely panned response to a mass murder and seemed to hint that President Obama might have connections to Islamic terrorists. The candidate who relies on his magnetism is now the most unpopular major-party nominee in modern history, with disapproval ratings that have climbed 10 points over the past month to 70%. On June 20 he fired his campaign manager and right-hand man, Corey Lewandowski, the keeper of the plaque and architect of its hands-off credo.

In a primary contest against a dozen others, Trump could run a race with little more than a Twitter feed to rouse his fans and a cell phone to reach cable bookers. In a general election, the odds are longer, the adversary more sophisticated, the electorate more diverse and the media more skeptical of what a candidate is selling. And so Trump's freewheeling formula has begun to crumble.

Trump faces the worst fundraising and organizational deficits in modern presidential history. He brought in just $3 million in May—less than what Clinton has raised in a single day—and has dispatched just a couple dozen field staff members nationwide, about the same number you might find for a competitive Senate race. Clinton has outspent him on swing-state TV ads by $23 million to zero. And that margin is only going to grow.

Trump, meanwhile, has spent more time tending the finances of his business empire than building a campaign treasury. Fundraising reports suggest Trump's play for the presidency has become a kind of vendor to many of the other properties in his portfolio. Through the end of May, Trump had spent more than $6 million in campaign money to pay his own companies. He's shelled out cash to fly on his planes, pay the lease on his headquarters in Trump Tower, rent his own glimmering hotel ballrooms for speeches and stock up on Trump-branded wine and bottled water. He even reimbursed his children for travel expenses.

If the GOP was ready to rally around him six weeks ago, party officials are now more keenly focused on damage control. Hostile delegates and party operatives have rekindled a long-simmering plot to turn Trump's coronation in Cleveland in July into a coup. Republicans have grown so frustrated with Trump that they're publicly weighing whether to overturn the will of more than 10 million voters, a move that could tear the party in two. But since they're probably stuck with him, they're still hoping he can change. "'Let Trump be Trump' is ridiculous," says Republican strategist Scott Reed, who ran Bob Dole's 1996 campaign. "He needs to grow into the role."

Campaign managers are supposed to make the trains run on time, but the railroad Lewandowski left behind is a mess

THE GUT-CHECK MOMENT came by coincidence on Father's Day with an intervention by three of the candidate's children. At a gathering at Trump National Golf Club in Bedminster, N.J., Donald Jr., Eric and Ivanka Trump—executive vice presidents of the Trump Organization, heirs to his empire and top political advisers to the campaign—insisted to their dad that Lewandowski had to go.

An ardent loyalist with no national campaign experience, Lewandowski was one of the original six members of Trump's political team. The buzz-cut-sporting manager mimicked Trump's style and mannerisms—the staccato patter and superlatives, the indifference to criticism, the loose relationship with the truth. And he learned from the real estate baron the value of location, currying influence by joining Trump on almost every campaign swing. When Trump was in New York, Lewandowski stayed at an apartment in Trump Tower on Manhattan's Fifth Avenue, just an elevator ride away from the candidate.

More than anything, he had Trump's trust. But Lewandowski's profane tirades and gift for sparking turf wars wore thin. In March, Trump tried to calm insiders by hiring Paul Manafort, a veteran Washington lobbyist who was brought on to wrangle convention delegates but quickly expanded his portfolio into other realms. Manafort and Lewandowski soon clashed over the campaign's organizing principles—Manafort wanted more scripted speeches—and the boss was amused by the rift, dismissing reports of discord. "It's actually a very well-unified campaign," he told TIME on June 8, when the squabbling was starting to peak. "Paul loves being in Washington and dealing with the Senate and dealing with Congress, and he's good at it. And frankly, Corey doesn't like that so much. He likes other things. He likes the rallies." Lewandowski wrested control of the campaign checkbook, insisting on personally approving

expenses as small as office supplies.

The Trump kids watched all this with growing alarm. In March, Lewandowski was accused of battery after grabbing the arm of a female journalist. (The charges were later dropped, but not before Trump supporters blasted the prosecutor as a Clinton backer.) In recent months, RNC Chairman Reince Priebus urged Trump in nearly every conversation to reassess the campaign's management, according to a GOP official, while making back-channel calls to Trump's children, who soon became Priebus' preferred conduits to the candidate.

The final straw for Lewandowski was a falling-out with Ivanka's husband, real estate heir and New York *Observer* publisher Jared Kushner, who has assumed a key role as the de facto foreign policy and communications adviser, aides said. When Lewandowski sought to shop negative stories about Kushner to reporters, Ivanka moved to protect the family brand. (Lewandowski denies any leak against Kushner.) The operative who bragged about winning the nomination on a shoestring budget was escorted out of Trump Tower. As the drama went down, a senior Trump adviser told TIME, "Nobody has any idea what's going on."

Campaign managers are supposed to make the trains run on time, but the railroad Lewandowski left behind is a mess, shot through with strife and run by a skeletal crew. (Trump is outstaffed by Clinton's White House in waiting by about 9 to 1.) With a measly $1.2 million on hand, according to federal campaign filings, Trump trails Clinton in the cash chase by some $42 million. "If you compare his campaign to Clinton's, he doesn't have a campaign," says GOP strategist Rick Tyler.

He doesn't have a shadow campaign, either. At least 15 super PACs have been established to support Trump, including separate groups promising to shore up his standing with everyone from women to the Amish. The confusion seems to be scaring off some megadonors, like Las Vegas casino magnate Sheldon Adelson, whose aides explored starting their own pro-Trump super PAC with as much as $100 million of Adelson's cash. But they couldn't coax rival groups to step aside so the pros could coordinate, in part because the existing groups wanted to cash

PREVIOUS PAGES: THE NEW YORK TIMES/REDUX; THIS PAGE: JASON MILLER—GETTY IMAGES

Cleveland Cavaliers fans celebrate an NBA championship as the city races to prepare for the next big test

A joyous Cleveland braces for a fractious GOP convention

Cleveland has come a long way since the polluted Cuyahoga River caught fire almost a half-century ago. Dubbed the Mistake by the Lake, the city just won its first major-league sports championship since 1964 and will host in July its first national political convention since 1936. So it's to be expected that the city of 390,000 is puffing up its chest a little bit this summer.

But amid the renewed pride remains a nagging doubt on the ground: Is C-Town ready? It's one thing to put on a celebratory parade for the Cavaliers' LeBron James, and it's quite another to handle the crush of an expected 50,000 convention visitors, including planned anti-Trump street protests that have turned violent elsewhere. The Hopkins airport renovation is still wrapping up, and, as ever, there are two seasons in northern Ohio: winter and road construction. "I can't stress enough that we are prepared for this," Cleveland police chief Calvin Williams told reporters.

Still, there are warning signs in the Western Reserve. The Cavs' playoff run left convention workers only 31 days to get into the Quicken Loans Arena, to lay thousands of miles of cable and build the staging. California's delegation, which boasts hundreds of people, has been assigned a hotel in Sandusky, Ohio—60 miles to the west. The police union chief frets that $20 million worth of security upgrades have been slow to arrive, and extensive fencing and safety checkpoints are causing pre-emptive commuter complaints. Racial tensions, meanwhile, remain raw; the 2014 police shooting death of 12-year-old Tamir Rice yielded a $6 million settlement from the city and a Department of Justice scolding, but that did little to calm residents' civil rights concerns. Protest permits have been granted to a number of groups with wide-ranging goals.

But if any American city can overcome these challenges, it's Cleveland. It has seldom accepted defeat. How else to explain how a place so maligned is home to a world-class orchestra, a vaunted health care system, the Rock and Roll Hall of Fame and Museum and a downtown that is attracting new residents and technology investments in waves? It's an added bonus that no Republican has won the presidency without carrying this state, which is rich with white working-class voters.

When Cleveland offered to host the Republicans' 2008 nominating convention, party leaders were surprised by the threadbare details. The application proposed tent cities for convention staff, long rides on shuttle buses and a temporary media workspace inside a former department store. But Cleveland Mayor Frank Jackson and his corporate allies remained determined to make it happen. Since then, new hotels have been built in downtown Cleveland, along with a permanent, 225,000-sq.-ft. convention center on the shores of Lake Erie. In the past five years, the region has seen almost $17 billion in infrastructure development.

One could argue that "Try, try again" is Cleveland's new mantra. A few years after the RNC initially said Cleveland wasn't quite what it was looking for, so did local hero James, who decamped to Miami and its Heat. A company owned by Cavs chief Dan Gilbert discounted LeBron memorabilia to $17.41, the birth year of another traitor: Benedict Arnold. But James returned, and through heart and hustle he made his city a champion again. "Against all odds, I don't know why we want to take the hardest road," he said in a tearful post-game interview, dedicating the win to his city. "I just kept that same positive attitude." —*Philip Elliott*

in themselves. And so for now, Adelson's money and organizational muscle remain on the sidelines.

The meltdown is visible everywhere. Instead of working the big cities of battleground states, Trump often winds up in strange places for strange reasons, like traveling to Scotland for a June 24 ribbon cutting at the ceremonial reopening of his latest golf course. He takes an unusual amount of time away from the campaign trail. And he has yet to buy a single general-election TV ad, showing a dangerous reliance on free media that few, if any, veteran pols believe can work.

Perhaps most damaging of all, the party got another case of cold feet about Trump in late June. House Speaker Paul Ryan, who had awarded his delayed endorsement with the enthusiasm of an undertaker, is now publicly peddling a competing agenda. And he took the extraordinary step of announcing that his members had his permission to disavow the party's nominee. "The last thing I would do," Ryan said on June 17, "is tell anybody to do something that's contrary to their conscience."

A few dozen GOP delegates are trying to topple Trump by getting a majority of colleagues to back a plan that would permit peers who oppose Trump for "moral or religious" reasons to withhold support as "conscientious objectors." It is a maneuver that has some precedent: Ronald Reagan's campaign managers considered the gambit when they were trying to dump Gerald Ford at the Kansas City convention in 1976. Many of those delegates support Texas Senator Ted Cruz, the runner-up in the Republican primary derby, whose political aides are quietly watching the insurgency unfold. But with no desirable Reaganesque alternative, the latest dump-Trump impulse is likely to prove little more than symbolic. Even party veterans who are desperate to ditch Trump have come to believe it would be better to lose with him than risk the fatal party rift that would come if he were deprived of the nomination.

But should the GOP stick with Trump, it doesn't mean it will run with him. For the first time since 1996, much of the party is preparing to run independent of its top candidate. Republican officials are drawing up plans to reallocate money and personnel away from the presidential race and to competitive congressional campaigns. Senators in tough re-election contests are telling donors the best use of their dollars is preserving the GOP's hold on the upper chamber, not backing a nominee who has torn up decades of party doctrine on trade, immigration and social programs. Abandoning Trump may be the only way for the GOP to keep the Senate out of Democratic hands. "You know what you're paying for with me," one Senator told donors on a finance call in mid-June. "We are the insurance policy." Another Senator is fielding questions about surviving five months of television ads tying the candidate to Trump. "We run our own race," the Senator told staff, sketching plans to maintain distance.

In early June, Illinois's Mark Kirk, a vulnerable Republican in a blue state, became the first Senate Republican to rescind his endorsement of Trump. The decision came shortly after an economic town hall in Chicago was sidetracked by a volley of questions from Hispanic workers about Trump's immigration policy. "*Cállate*—shut up—that's what I told Donald Trump," Kirk replied. Senator Jeff Flake, an Arizona Republican, told TIME he backs the long-shot fantasy of toppling Trump in Cleveland. "The Trump campaign is not good down-ballot," he says. "It weakens the party."

For the first time since 1996, much of the party is preparing to run independent of its top candidate

IF LEWANDOWSKI'S DEPARTURE is a turning point, not even Trump's allies are certain of where the candidate is headed next. Would the in-your-face strategy that carried him this far be replaced with something more staid and somber? And would that even work? For now, perhaps: a day after the ouster, Trump announced a spate of new hires. And when Clinton gave a speech burying Trump's economic policies, his campaign fired off a flurry of rebuttals. Simple stuff, but a first for his undermanned communications shop. He began to bombard his email list with fundraising pleas, pledging to match up to $2 million in online donations. A meeting to mend fences with Congress is on the calendar for July.

The new strategy was on display on June 22, when Trump delivered a targeted critique of Clinton's economic agenda and her stewardship of the State Department. Speaking with the aid of a teleprompter, which curtailed his typical digressions, Trump was even-toned and on message. The message, however, was still unmistakably Trump. The self-aggrandizing hyperbole, the conspiracy theories and the scathing personal attacks seemed to find their target. "Hillary Clinton," Trump declared, "may be the most corrupt person ever to seek the presidency."

All of this change, even if it sticks, may be too late. The billionaire developer will never be able to match Clinton's state-of-the-art operation, its massive ad spending or its organizational scale. And the perception that he is a unique, uncensored and authentic candidate is at the center of his appeal. "If he woke up tomorrow as Mitt Romney," says one veteran of the 2012 GOP nominee's buttoned-up campaign, "he'd lose."

That leaves Trump's advisers and cheerleaders scrambling to write a new playbook on the fly, mixing his renegade instincts with concessions to campaign custom. "There are warring factions," says a GOP strategist interested in joining the campaign. "Be more presidential, or let him do what he wants. Neither one alone is a way to win."

So at the urging of Manafort and his children, Trump is looking to thread the needle. He'll keep tweeting insults and lobbing missiles. The bombast isn't going away, but instead of riffing without a filter, he'll stay focused on the right targets. "We'll pivot off of the judge," Manafort explains, "and onto Clinton."

Of course, the Great Presidential Pivot has been just around the corner for months now. Few politicians can execute a makeover of this magnitude, least of all a 70-year-old newcomer who wins by bending norms. As Manafort was pledging a tighter focus on Clinton, Trump was busy cooking up an improved nickname for his rival: "Lying, Crooked Hillary." Some things never change. —*With reporting by* PHILIP ELLIOTT, JAY NEWTON-SMALL *and* WILL DRABOLD/WASHINGTON ◻

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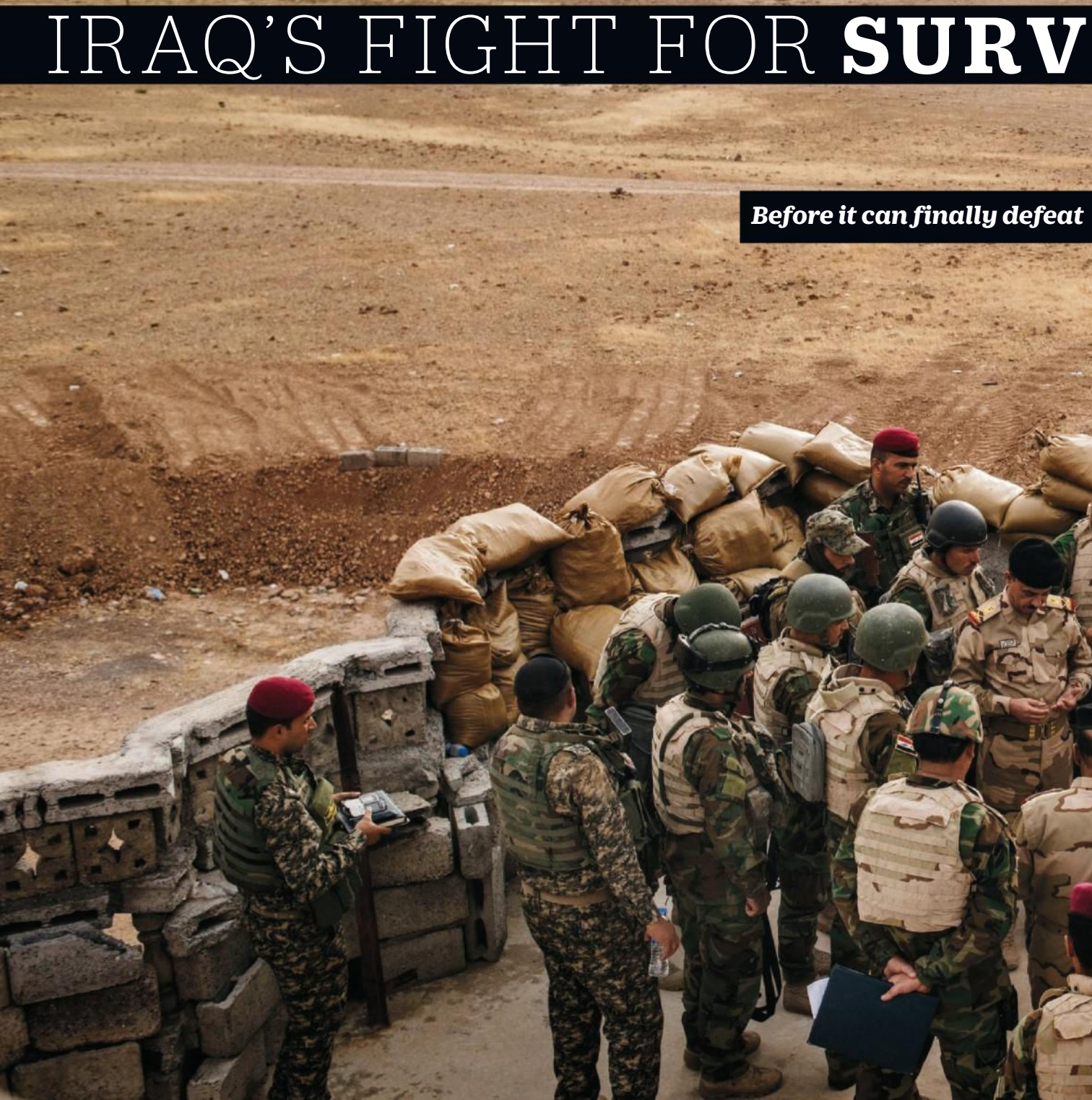
IRAQ'S FIGHT FOR SURV

Before it can finally defeat



IVAL

ISIS, the country must solve its deep political divisions BY JARED MALSIN/ERBIL

Iraqi soldiers assemble on May 18 in Kharbardan, south of Mosul. The military seized the village from ISIS in March

PHOTOGRAPHS BY YURI KOZYREV FOR TIME

An American soldier guards the U.S. military base at Camp Swift, near the Iraqi town of Makhmour

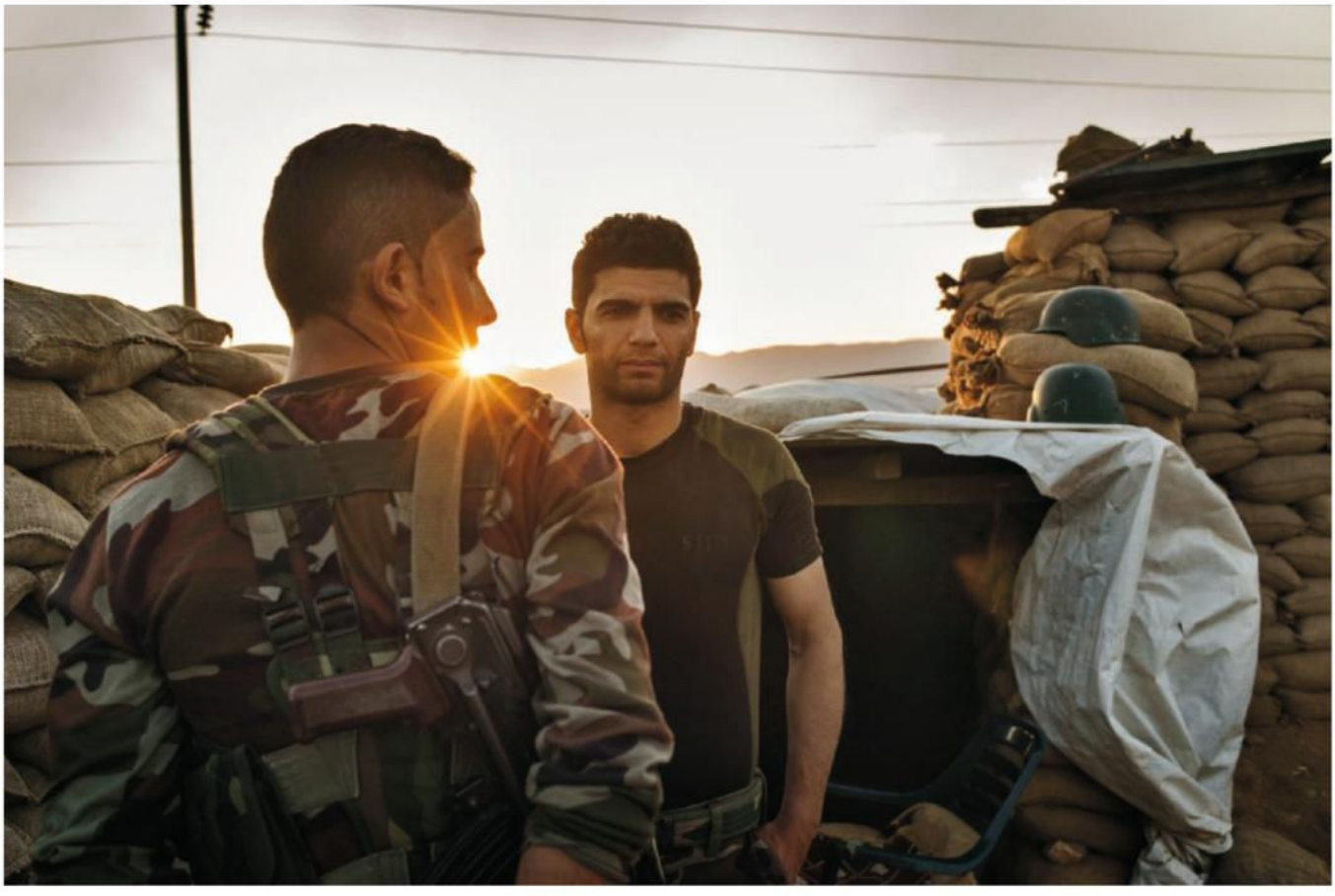
ON THE MORNING OF MAY 17, U.S. SOLdiers file into a converted wing of the international airport in the northern Iraqi city of Erbil. The occasion is a Transfer of Authority ceremony, held whenever one group of soldiers rotates out and hands the reins to another. This one has the awkwardly forced feeling of an office party, only with enormous geopolitical stakes.

The Americans aren't the social problem. They chat with one another as an Army brass quartet plays swing tunes. The tension rises from the Iraqis, who arrive in two distinct groups. One group—officers of the army that lost a large fraction of the country's territory to ISIS in the jihadi group's 2014 blitz—answers to the central government in Baghdad. The other group are Kurdish fighters, who answer to the semiautonomous regional government that was crucial to stopping ISIS's advance. But a common enemy has not engendered mutual respect. General Sirwan Barzani, a veteran Kurdish commander, nods toward the officers in the Iraqi army, which has been criticized for its pace in retaking territory. "The best army in the world," he says sarcastically. "Three months to liberate one village."

Small wonder that when U.S. Colonel Scott Naumann, the commander of troops from the exiting 10th Mountain Division, begins his address, the talk is of a glorious past. Naumann compares his troops' efforts to help Iraqi forces cross the Tigris—a key step toward loosening ISIS's grip on the region—to the division's legendary push toward northern Italy's Po River in the final months of World War II. That action more than 70 years ago, Naumann says, represented "a significant transition in a campaign to defeat a brutal enemy in a faraway land."

The campaign pushes on. The U.S. military's role in Iraq in 2016, of course, is supposed to be nothing like it was even 10 years ago here, when more than two American soldiers, on average, were dying each day. Yet there are now officially 4,087 U.S. troops in Iraq, supporting the campaign against ISIS. It's the biggest military presence in the country since President Obama completed the withdrawal of American forces from Iraq in 2011, and the true number is likely larger, owing to the presence of special-operations forces, contractors and other undeclared U.S. troops. The American soldiers are at risk: three have been killed since last fall as part of the campaign, most recently Navy SEAL Charlie Keating IV, who was killed in a gun battle with ISIS forces on May 3.

No one doubts that the U.S. is at war with ISIS. Although he acted on his own, Orlando shooter Omar Mateen made a pledge during the massacre to "Abu Bakr al-Baghdadi of the Islamic State"—the leader of ISIS. CIA Director John Brennan, testifying to Congress just a few days after Mateen killed 49 people, warned that ISIS "is training and attempting to



Kurdish fighters hold the front line against ISIS militants outside the town of Sinjar

deploy operatives for further attacks." Obama, while highlighting the efforts of Iraqi forces, emphasized the military steps the U.S. had taken against ISIS, including deploying additional special forces and launching thousands of airstrikes against the terror group. "Our mission is to destroy [ISIS]," Obama said.

But the Americans—as the Americans themselves are the first to point out—are not in charge of the campaign against ISIS in Iraq. The U.S. boots on the ground—and the power in the air—are there to support the local forces meant to be doing the fighting. "I wrote my campaign plan in direct support of [the Iraqi] campaign," says General Gary Volesky, the overall commander of U.S. forces in Iraq. "We're not in the lead of this."

Which leaves Iraq—or rather, the myriad and sometimes conflicting forces on the ground in Iraq: the Iraqi government army, the Kurds and Shi'ite-dominated militias—to do the leading. But as two weeks of on-the-ground reporting near the front lines in northern Iraq show, absent a massive U.S. redeployment to the region—which Obama has ruled out—military victory against ISIS will be achieved only when those local groups are able to come together to create a unified political alternative to the jihadist group's caliphate.

Nowhere is that more true than in the northern city of Mosul, the regional capital of more than 1 million Sunni, Shi'ite Arab and Kurdish Iraqis, which ISIS seized in June 2014, and where many of the country's underlying political disputes over territory, resources and influence remain unsettled. Mosul—the largest city conquered by ISIS and a key source of prestige for the group—is a test case for the larger effort to rebuild the sectarian, ethnic and political ties in Iraq whose destruction after the U.S. invasion helped lead to the rise of ISIS.

While some progress has been made—the Iraqi army has all but retaken the central city of Fallujah—the military campaign to destroy ISIS is constrained by the country's deep political divides. For the soldiers on the front lines, that's turned the long campaign to recapture Mosul into a long exercise in waiting.

The Americans—as the Americans themselves are the first to point out—are not in charge of the campaign against ISIS in Iraq

ON A RIDGE LINE east of Mosul, Kurdish troops look directly down onto the city,

PHOTOGRAPHS BY YURI KOZYREV—NOOR FOR TIME

a mass of gray buildings set against the brown of the plain below. Plumes of smoke rise from distant fires. The troops here are part of a broad range of Iraqi Kurdish units known as the *peshmerga,* which means "those who face death." The militias began as a rebel force that waged a long struggle with the government of Saddam Hussein. In the wake of the Iraqi army's collapse in 2014, Kurdish militias including the *peshmerga* were the only forces left to block the ISIS advance in the north of the country.

The Kurdish government has benefited from repelling ISIS, taking control of crucial sites like the Mosul Dam and the disputed, oil-rich city of Kirkuk. But on the front, many of the troops complained about poor pay and lack of equipment. Captain Abdel Baki Majid claimed that the 600 men on the line had been given only 150 rifles among them. Others said they had spent their meager wages to buy their own guns. "We get 500,000 [Iraqi dinars] a month and spend 500,000 on rent," one officer jokes as his men pass around small, bulbous glasses of tea.

Boredom is part of every soldier's rations, but some of these men have been holding the same position for nearly two years with no real change, and the wait is wearing. "During Saddam's time, we were fighting with honor," says Selim Fattah, a fighter wearing a tan vest branded with a Jeep logo. "We knew we were doing something. But now we're dying here so some politician can benefit." He is doubtful about the prospects for an attack on Mosul. "ISIS has weapons. We can't fight them like this," he says, pointing at the assault rifle slung over his shoulder.

Those frustrations are echoed at Black Tiger Camp near the town of Makhmour, the headquarters of General Barzani. In addition to being the nephew of Masoud Barzani, the longtime president of the Kurdish region, Barzani is the millionaire owner of a telecommunications empire. He has dipped into his personal wealth to outfit his troops with needed equipment, like a radio jammer to stop the remote-control bombs used by ISIS.

Barzani is middle-aged with black hair, a thick mustache and an unusual penchant for plain talk. He says that while he expects Kurdish forces to participate in the Mosul operation, the depth of their involvement hinges less on military necessity than on the political dance between Baghdad and the Kurdish capital of Erbil.

Iraqi commanders gesture at the front lines in Kharbardan. Progress toward Mosul has been slow

"As a military, we are ready, of course," he says. "But it depends on the agreements: until when, how many *peshmerga* they will attend in the operation. Where is the line, let's say, the target for the *peshmerga* jointly with the Iraqi army."

The Kurds are the dominant military force in northern Iraq, and there will be no retaking Mosul without their cooperation. But actually seizing the city would set up a showdown over how to divide and govern the territory. For now the Kurdish leadership refuses to join a full-scale assault on Mosul, a majority-Arab city that the Kurds do not claim as part of their homeland.

Barzani, who commands one sector of the front line south of Mosul, doubts the Iraqi army's abilities. "There is something missing, something wrong inside this army," he says. But Barzani also claims the *peshmerga* lack the equipment to join an assault on the city in earnest. In December, the Pentagon approved deliveries of equipment sufficient for 2,200 fighters. The Kurdish government wants more, but Western officials worry that sending too much support to the *peshmerga* could tip the scales in a future showdown between the Kurds and Baghdad. It's another reminder that uncertainty over what will happen in Iraq after ISIS is defeated is hampering the effort to beat the terrorist group in the first place.

For his part, Barzani has made it clear that his fighters won't be going anywhere soon. "I need more ammunition," he says. "I need more weapons. If not, I cannot stay here for long."

MOHAMED EL-SHAMARI STANDS on the grass with other men from his unit in the Iraqi army in the village of Kharbardan, one of several settlements south of Mosul that have recently been retaken from ISIS. The unit seized Kharbardan on March 24, nearly two months earlier, fighting house to house. The offensive was part of Operation Valley Wolf, in which the Iraqi army is reclaiming villages along the Tigris River south of Mosul one by one.

A wiry 26-year-old with black hair and a thin mustache, Shamari wears a helmet and a tan bulletproof vest over brown fatigues, and a second vest loaded with ammunition clips. He is from the town of Rabia, near Sinjar, in an area where Kurds and Arabs historically lived in peace. Rabia fell to ISIS in 2014, but though the jihadists were pushed out later that year, the town remains in a kind of limbo between Kurdish and Iraqi government control. "We're all brothers," Shamari says of Kurds and Arabs. He speaks earnestly. "We have the same enemy."

That enemy is brutal—one soldier passes over a smartphone to show pictures of a pile of human bones they found when they entered the village. But the mood among the troops in Kharbardan is confident, as if the embarrassment of 2014, when many Iraqi soldiers ran in the face of ISIS, had never happened. As they speak, gunshots echo from somewhere near the front line about 100 yards away. "That's just the beginning!" one soldier jokes.

For all their bravado, much of the Iraqi army is still ill trained and ill equipped. Some of those problems are the legacy of the last war in Iraq. After 2003 the U.S.-led military coalition chose to dismantle the Iraqi army and build a new one from scratch, but as the antigovernment, anti-American insurgency gathered strength, the coalition was forced to train thousands of new soldiers in a hurry. Groomed to fight a counterinsurgency, the new troops were unprepared to face the standing army marshaled by ISIS, which included veterans of the original Iraqi army disbanded by the Americans.

There is also the basic problem of

numbers. The army doesn't have enough troops to retake all the ISIS-held cities, and certainly not simultaneously. Volesky, the overall commander of U.S. forces in Iraq, notes that the Iraqi army is forced to play a "shell game" as it moves troops around the country. "Every unit in the Iraqi army is engaged in combat," he says. "For them to generate forces to go to Mosul, they've got to pull a force out and then plug that hole with another force."

That leaves the U.S. military as an essential part of the operation against ISIS—but only in a supporting role. The White House doesn't want to be drawn into another full-fledged, U.S.-led war in the Middle East—and neither do most Americans. The Administration also doesn't want the military campaign in Iraq to get too far ahead of the postmilitary planning, lest fighting against ISIS be succeeded by fighting between Baghdad and the Kurds, or between pro-Shi'ite militias and their rivals. It's notable that the number of bombs and missiles used against ISIS by the U.S.-led coalition peaked at 3,227 last November and had dropped by nearly 40% to 1,982 in March.

The military campaigns against ISIS in Iraq and Syria are working, albeit ploddingly—ISIS has lost more than 40% of its territory. But weapons alone won't eliminate ISIS as a terrorist threat to the West. Even as ISIS loses ground on the battlefield, it is attempting to reclaim publicity and momentum by ramping up its attacks on civilians both in the Middle East and beyond. "ISIS spews an ideology of extremist beliefs, hate and destruction that in all likelihood cannot be destroyed by military means," says Dave Barno, a retired Army lieutenant general who commanded U.S. and allied troops in Afghanistan from 2003 to 2005. "That reality makes our military actions against ISIS necessary but not sufficient to destroy this deadly phenomenon."

BUT IF THE FIGHT against ISIS in Iraq may not make the U.S. instantly safer, it can do something to help the Iraqis who have suffered far more at the hands of the terrorist group—like the people of Sinjar. The town in northern Iraq is home to Iraq's Yezidi religious minority, and in August 2014 ISIS swept in, forcing thousands to flee and killing hundreds of others. Thousands of women were pressed into sexual slavery, and the dead were left in mass graves. A U.N. commission of inquiry declared in June that ISIS had committed genocide against the Yezidis.

It was the horror of the ISIS rampage against the Yezidis of Sinjar that helped tip the scales toward U.S. intervention in Iraq, and in November 2015 Kurdish forces backed by coalition airstrikes retook the city. But while the town is free of ISIS, it lies in ruins—the same fate that likely awaits Mosul and other occupied Iraqi cities when they are finally liberated. A short drive from the front line, a few dozen families have returned to a precarious existence, but Sinjar is otherwise deserted. ISIS fighters still rain mortars and rockets on the town. Even winning the war on ISIS comes with a price: while the U.S. government says only 42 civilians have died in Iraq and Syria since the anti-ISIS operation began in 2014, a study by the London-based nonprofit Airwars estimates the toll is at least 1,323 civilians. "The town is sh-tty," says Colonel Nizar Hamzo, a Kurdish militia commander, as he sits in the house outside Sinjar that is serving as his headquarters. "It's not sustainable to live here."

Even as he speaks, gunfire pops outside. Incoming fire. Hamzo bolts to the door and pulls on his shoes, then races to join his men at the sandbags. In the twilight, they fire back down the road. The camp transforms into a frenzy of men running and calling orders. A truck screeches back to the house, and fighters load boxes of ammunition into the back before it careers again toward the front line. Bullets streak across the dusk.

After 20 minutes, the firefight dies out and Hamzo and his men gather in a circle behind the sandbags. A fire burns in the distance, down the empty road

ISIS is attempting to reclaim publicity and momentum by ramping up its attacks on civilians in the Middle East and beyond

in ISIS country. In the desert dark, the few sounds become more pronounced: a yawn, a cough, crickets. An airplane buzzes overhead. Hushed conversations dribble out of the dark. The talk is of the mundane work of war: We have to make a strong front line, says one, avoid gaps in the sandbags. How much ammunition do we have, wonders another. They light cigarettes, orange dots in the blackness.

Then, without warning, an explosion rocks the land outside the camp. A coalition warplane has struck the ISIS side of the line. "Did it hit the spot?" the commander asks. "Yes sir, the spot we located," someone responds from the darkness. Laughter erupts, but it's not clear what's funny.

Minutes later, two intelligence officers stroll into the tent. They look as if

Murad with his young son in a camp for displaced people near the town of Sinjar

they have showered more recently than the front-line soldiers. The officers carry tablet computers, which have become the deadliest weapons in this war when used to dial in the coordinates for airstrikes by the U.S.-led coalition.

When ISIS conquered Sinjar, routing the *peshmerga* force stationed there, tens of thousands of Yezidi civilians fled in terror to the mountains that rise abruptly out of the plains east of the city. ISIS militants trapped the Yezidis in the mountains without access to food or water, beginning a siege that lasted for days until Kurdish militias cut an escape route through Syria. Thousands of displaced people still live in a makeshift camp atop the mountain.

Born in 1984, Qubad Miqdad Murad had been a police officer in Sinjar, although he was outside the town when the ISIS invasion took place. In April he became one of the few residents to move back into Sinjar, bringing his wife and their two young children. Murad reported for duty at his old post guarding a hospital, but within days the ugly reality began to set in. ISIS rockets fell daily on the town, and another police officer was killed by the shelling near the hospital. A month later they left again, moving into a tent in the displacement camp. "I decided to leave, for the safety of my family," he says.

Six months after its "liberation" from ISIS, Sinjar is still a skeleton of a town. Rubble is everywhere, the buildings destroyed by the very airstrikes that helped drive ISIS out. The twisted metal doors of the remaining shops bear graffiti, some of it left by ISIS fighters. (The most bizarre tag is written in Russian, presumably left by a foreign fighter: LOVE EACH OTHER, it reads.) Many of the shops and houses have been tagged according to ethnicity and religion—Yezidi, Kurd, Sunni, Shi'ite—a haunting reminder of the sectarian pogrom ISIS has carried out everywhere it can. But it's a warning as well, of the next war this multiethnic, multisect country may face, the morning after it finally defeats ISIS. —*With reporting by* MASSIMO CALABRESI *and* MARK THOMPSON/WASHINGTON

Science

LIFE, THE REMIX

A new technique that lets scientists edit DNA with ease is transforming science—and raising difficult questions

By Alice Park

PHOTOGRAPHS BY HANNAH WHITAKER FOR TIME

Kathy Niakan's laboratory at London's Francis Crick Institute is the size of a walk-in closet, but between its walls she's working on one of the most expansive frontiers ever contemplated by science.

Sometime soon, Niakan will place a human embryo on the platform of her microscope. With one hand, she will steady the embryo—an egg that has been fertilized by a sperm but hasn't yet begun the cell division that eventually leads to a person. With the other, she will maneuver a tiny pipette up against the embryo and inject a specially prepared liquid. If all goes as expected, the liquid will alter the DNA at the core of the cell—literally rewriting the embryo's genetic code. At that point, Niakan will have effectively edited this potential human being. She isn't interested in creating designer humans; instead, she's trying to learn how healthy humans are made, by identifying which DNA sequences are crucial to helping a human embryo develop normally.

This research would be significant enough all on its own. Niakan, a 38-year-old Ph.D. from UCLA, is trying to override nature's selections, instead generating an outcome that she has designed. But what's truly remarkable is that her work represents just one front of a broad revolution in genetics sparked by the technique called CRISPR-Cas9. Just four years old, this discovery is transforming research into how to treat disease, what we eat and how we'll generate electricity, fuel our cars and even save endangered species. Experts believe that CRISPR can be used to reprogram the cells not just in humans but also in plants, insects—practically any piece of DNA on the planet. On June 2, a scientist at MIT and Harvard's Broad Institute announced the development of a related CRISPR technique that can edit RNA, which is responsible for regulation and expression of genes. If DNA is the genetic alphabet, RNA spells actual words. In plain terms, that means the already vast possibilities for CRISPR got even bigger.

So while Niakan moves forward with her work, scientists around the world are exploring other ways to deploy this powerful new tool. At the University of California, Riverside, a team is reprogramming a yeast strain to convert sugars into the components of biofuels. A plant pathologist at Pennsylvania State University has created a mushroom that doesn't brown. At Temple University in Philadelphia, scientists have used CRISPR to successfully excise HIV from human cells in a lab—and in living animals infected with the virus. Scientists envision creating cows that make more milk, tomatoes that don't taste like water and—that stuff of science fiction—the ability to bring back extinct species. In July, the National Institutes of Health (NIH) will issue recommendations on the first bid to test a CRISPR-based medical treatment, on people with myeloma, by taking out their blood cells and revving up their cancer-fighting genes with CRISPR and then returning the newly edited disease-free cells.

Talk to any biologist, geneticist or botanist right now and you will hear a level of excitement that comes only from the emergence of something truly groundbreaking. If the evolution from giant mainframes to personal computers forever changed technology, CRISPR promises to do something similar for genetics—democratizing the power to improve on nature for scientists at nearly all levels of expertise in practically every field. There have been other techniques for altering DNA, but those were expensive and complicated. CRISPR is neither. "It's a game changer," says David Baltimore, a Nobel laureate for his discoveries in viral cancer genetics.

The potential is enormous, but to many, the risks are equally great. Even well-intentioned scientists don't understand all the possible downstream effects of unleashing altered organisms into the wild—including the human gene pool. The simplicity that makes CRISPR so powerful raises the possibility that terrorists or rogue states could deploy it as a weapon—a fear that led Director of National Intelligence James Clapper to include gene-editing methods like CRISPR on a list of mass-destruction threats earlier this year. But no matter the dangers, rewards or questions, this technology is being used now. Will scientists know what to do with it?

IT'S FITTING that the first experiment using CRISPR to edit human embryos will take place at the institute named after Francis Crick. Together with James Watson in 1953, Crick unveiled how DNA is structured. Their discovery launched the modern genetic revolution, because revealing the way DNA is put together allowed researchers to start taking it apart. That, in turn, led them to understand how genetic aberrations contribute to disease.

Mapping the human genome, which was completed between 2001 and 2003, gave researchers the next important tool: the master plan that can be studied for clues about the functions of all our genes. Enzymes that could splice aberrant DNA came next, in the 1970s, but their unpredictability required deep

expertise and a lot of luck to target the genome at just the right places. Newer methods, with inscrutable names like "zinc fingers" and "TALENs," have recently dominated genetic-editing experiments, but these still lacked the accuracy to make most doctors comfortable enough to use them to treat genetic diseases in humans.

It turns out that the master key for unlocking DNA editing was waiting to be discovered inside a cup of yogurt. In 2007 a group of dairy scientists were trying to understand why a variety of bacteria that gives yogurt its tang was constantly getting infected by viruses that altered the taste of the product. When they sequenced the genome of the *Streptococcus thermophilus* bacteria, they kept hitting odd repeated fragments of DNA. "We thought they were annoying," says Rodolphe Barrangou, one of the researchers, who is now an associate professor of food science at North Carolina State University.

Eventually Barrangou and others realized that the repeated fragments weren't random or something to be ignored; they were the bacteria's way of keeping a genetic record of viruses that had infected them—a crude but very effective immune system. In between the repeated sections of DNA were snippets of the virus' genes; when the same virus attempted to reinfect the bacteria, it would gravitate toward its matching section on the bacterial genome and bind to it. That summoned a powerful enzyme that effectively snipped the virus out, leaving the bacteria free from infection.

This was a critical insight. Scientists had previously named the repeated segments "clustered regularly interspaced short palindromic repeats"—hence, CRISPR. But the real breakthrough was figuring out how to put CRISPR to use in something other than a strain of bacteria in a breakfast food.

During the summer of 2012, two groups teamed up to figure it out: one led by Jennifer Doudna, from the University of California, Berkeley, who is an expert on RNA and first became intrigued by biology while growing up in Hawaii; and another headed by Emmanuelle Charpentier, then at Umea University in Sweden and now at the Max Planck Institute. By sharing their research with each other, they discovered that a particular enzyme in the cells—named Cas9—could function as a powerful pair of molecular scissors. CRISPR, they discovered, could be programmed to target a specific section of DNA by loading it with its matching RNA sequence. Once paired, the Cas9 enzyme would cut out the matched section. "I had this gut feeling that this could be something really, really exciting and interesting," says Doudna, 52. "I remember looking at the data and realizing we could create an engineered version that was more simplified."

KATHY NIAKAN

She will be the first person to use CRISPR in a sanctioned study on human embryos.

ON WHY SHE IS USING CRISPR

"We have very little understanding of what it takes for a healthy human embryo to develop successfully. CRISPR can get at the genes responsible for that and maybe lead to healthier pregnancies and fewer miscarriages."

ON USING CRISPR RESPONSIBLY

"Being a scientist also means being a human being. Studies with human embryos are a sensitive topic, so we owe it to the public to be transparent and let them know why we're doing this so nobody is caught off guard. Scientists need to discuss their research really, really openly."

FRANCIS CRICK INSTITUTE

The two teams moved quickly to publish their findings, and in August 2012, the CRISPR-Cas9 technology was revealed to the world in a scientific journal. Scientists working in fields as varied as cancer, food science and the energy sector immediately knew their worlds were forever changed. "It was like setting a match to tinder," says Thomas Barnes, chief scientific officer at Intellia, a biotechnology company cofounded by Doudna to try to use CRISPR to treat disease. There was such a backlog of knowledge about genes and such an unmet need for ways to manipulate them that the technique was immediately heralded as monumental. "The moment CRISPR was introduced, everyone immediately knew what to do," says Barnes. "All the things they thought should be done could now actually be done."

The fervor intensified six months later, when the Broad Institute's Feng Zhang, an associate professor of brain and cognitive sciences and biological engineering at MIT, took CRISPR to the next level. "I thought, Let's try to see if we can use this technology inside the human cell," says Zhang, 34. "I thought, If that can work, this can be transformative."

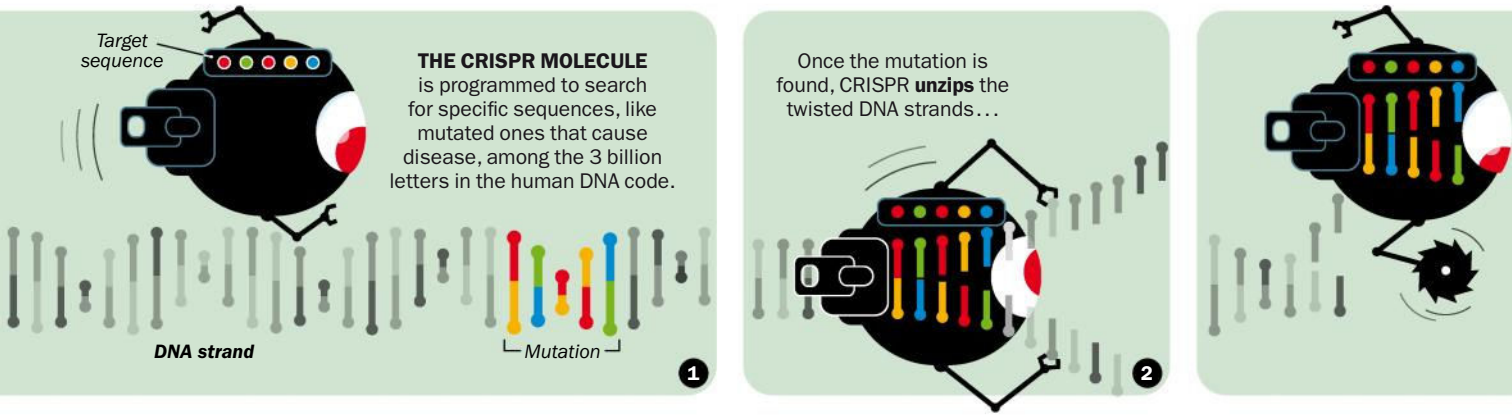
It was. Zhang's work demonstrated that CRISPR could be used to precisely and efficiently edit the DNA of human cells. And with that, the revolution was under way.

TODAY YOU CAN GO ONLINE to any number of biological-supply companies and order your own CRISPR kit for as little as $130. The technique is being used in hundreds of labs across the U.S. and around the globe. At New York City's Memorial Sloan Kettering Cancer Center, cancer biologist Scott Lowe is developing therapies that turn on and off genes in tumor cells to make them easier for the immune system to destroy. Before CRISPR, figuring out what effect a particular gene had on cancer required breeding mice that lacked the gene to see how their cancers progressed or didn't—a months-long endeavor. "Now CRISPR makes it very easy in an afternoon to knock out a gene and study what effect it has on the tumor," Lowe says.

Already, CRISPR is producing clear results in practically every corner of biology. Researchers have corrected the genetic defect in Duchenne muscular dystrophy in mice and deactivated 62 genes in pigs so that organs grown in the animals, such as heart valves and liver tissue, won't be rejected when scientists are ready to transplant them into people. In China, researchers report that they have accomplished in dogs, rabbits, goats and monkeys what human bodybuilders yearn for: a way to quickly build muscles to hulklike proportions. Also in China, plant scientists are editing out genes that make wheat susceptible

HOW CRISPR EDITS DNA

Every cell in the body carries a copy of genetic code—a blueprint for who we are. CRISPR allows scientists to edit that code with more control than ever before


Target sequence
THE CRISPR MOLECULE is programmed to search for specific sequences, like mutated ones that cause disease, among the 3 billion letters in the human DNA code.
DNA strand
Mutation
1
Once the mutation is found, CRISPR unzips the twisted DNA strands...
2

to mildew, potentially leading to hardier crops.

Malaria researchers are exploring a number of ways that CRISPR can be used to manipulate mosquitos to make them less likely to transmit the malady. (Since only females bite and spread the parasite, for example, they're editing in sterilizing changes so the females can't reproduce. Eventually, the hope goes, malaria will cease to be transmitted.)

Some even see the technology as an answer to the growing problem of plastic waste. In Japan, scientists found a bacterium that can chew up the main element in landfill staples like plastic shopping bags—but very slowly. They're investigating ways to use CRISPR to rev up the plastic-degrading gene and turn such microbes into garbage-eating machines.

Even endangered species might be getting the CRISPR treatment. George Church, a professor of genetics at Harvard Medical School, is exploring the possibility of saving the Asian elephant by giving it an entirely new habitat in the relatively human-conflict-free tundra of Siberia. What he hopes will keep the species alive are genes from the extinct woolly mammoth. "It dawned on me that this could be possibly the most exciting part of a new conservation strategy where the goal is not so much to bring back extinct species but to enliven the ecosystem and help endangered species," says Church.

In other words, if you can imagine something that involves genetics, there is probably a scientist somewhere thinking about how to use CRISPR for it. "Right now the only limiting factor in CRISPR is our imagination," says N.C. State's Barrangou. "The question now is, Where can you not use it?"

AN EQUALLY IMPORTANT QUESTION might be, Where should you not use it? CRISPR research keeps accelerating and not just because of the excitement of scientific discovery. The biotech industry is poised for huge profits as everything from CRISPR disease treatments to CRISPR pigs and even mushrooms comes to market.

EMMANUELLE CHARPENTIER & JENNIFER DOUDNA

The two collaborated to develop CRISPR-Cas9, the most accurate and reliable way of editing DNA.

DOUDNA ON CRISPR'S POTENTIAL

"The thing that makes it both wonderful and a bit awesome in a scary way is that it is so easy to employ. But we can't put the genie back in the bottle. It's here. We have to go with it."

Charpentier, left, and Doudna

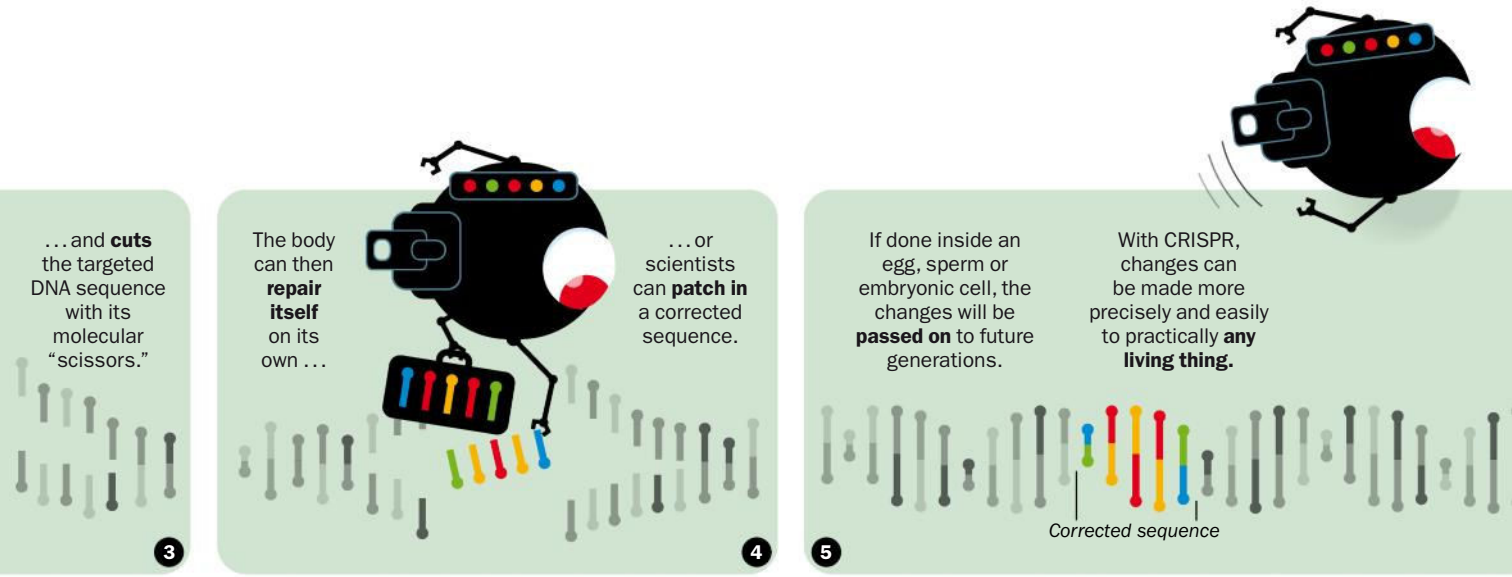
The Broad Institute's Zhang and Berkeley's Doudna are both co-founders of biotech companies as well. They are also embroiled in a high-stakes patent battle over whose institution may license the rights to use CRISPR for all these promising applications—and that battle is ongoing.

The speed with which CRISPR has infiltrated so many areas of science is sobering to those most familiar with what the technology can do. "I worry a lot," says Harvard's Church. "And I have every reason to encourage citizens at large to worry as well."

So, apparently, does the national-security establishment. CRISPR means that most microbes driving infectious diseases are just a few DNA edits away from becoming superstrains that could wipe out unprepared populations. That's the thinking that prompted Director of National Intelligence Clapper's classification of CRISPR as a weapon of mass destruction. With the tools easily bought online, it would be theoretically possible to engineer a killer mosquito that transmits a deadly disease, or a DNA-damaging virus, that could infect human cells and decimate the population.

Doudna, chastened by the lightning pace, began to speak out about her concerns. "The science is moving so fast, and I'd spend the day talking to colleagues who were excited about it, answering emails about new ways of using it and reviewing papers about CRISPR and then come home to have dinner with neighbors who were not scientists, and I realized they have no idea what's going on," she says. "Here we have a technology that enables us to alter human evolution. I realized I might need to get involved in more public discussion about this technology."

In January 2015, she encouraged other leaders in the field to gather in Napa Valley for a summit, the first of its kind, to discuss its place in science. The idea was to discuss CRISPR's potential impact on society and debate the ethical issues involved to get ahead of some of the anything-goes appli-


. . . and **cuts** the targeted DNA sequence with its molecular "scissors."
3
The body can then **repair itself** on its own . . .
. . . or scientists can **patch in** a corrected sequence.
4
If done inside an egg, sperm or embryonic cell, the changes will be **passed on** to future generations.
With CRISPR, changes can be made more precisely and easily to practically **any living thing.**
Corrected sequence
5

For more on these ideas, visit **time.com/CRISPR**

cations. They focused on what they felt was the most controversial use—editing human reproductive cells like eggs, sperm and those in embryos, which would be able to pass on their changes to future generations.

By the end of the lively debate, the 13 scientists, ethicists and lawyers at the summit agreed that using CRISPR to modify human reproductive cells, so called germ-line changes, that would result in pregnancy or treatments in people, should not be attempted by scientists for the time being.

Their position was based on the reality that precise as CRISPR is, the technique still isn't perfect. Even more uncertain, the group said, were the long-term consequences of altering genomes. Snipping out a disease-causing gene might treat the ailment, but evolution makes it clear that any change in genes or characteristics in a living thing may affect its ability to survive and reproduce in other ways down the line. It's well established, for example, that the mutation responsible for sickle-cell anemia also tends to protect people from developing malaria. What other risk-benefit balances would this kind of genetic editing disturb?

While Niakan plans to use CRISPR on human embryos, she will not allow them to develop beyond seven days—or about when they've divided enough times to have 200 to 300 cells. (U.K. law prohibits letting human embryos in research to progress past 14 days.) Doudna says the summit's attendees, including her, support such use of CRISPR. But with research and commercialization evolving so quickly, it isn't hard to imagine some next steps—including some with decidedly eugenic overtones. If IVF clinics gain the ability to edit out severe genetic diseases, will some move on to creating babies tailored to parents' preferences for height or intelligence or athletic ability?

Robin Lovell-Badge, an embryologist and geneticist at Crick, notes that there are currently no U.S. laws governing the type of research that is done on human embryos with private money. For now, the NIH forbids public funds to be used on research that uses CRISPR on human embryos. But most commercial IVF clinics already have the microscopes needed to use CRISPR on embryos since they routinely use it to inject sperm into eggs for fertilization. "That really scares me, because you can imagine someone with a big ego, whether it's a patient or a clinician, wanting to be the first to use CRISPR to treat something, or rogue IVF clinics offering services guaranteeing offspring will have this or that trait," Lovell-Badge says. "That really scares me and my colleagues."

The line between what is considered abnormal and normal in an embryo or even a fetus could become fraught. "If we start to say certain people with genetic conditions should not exist, then what message does that send to people who already have that same disorder?" says Calum MacKellar, director of research for the Scottish Council on Human Bioethics. "As a society we will get to the point of saying that certain people are no longer equal. And that's a terrible situation to be in."

ARE THERE CONSTRUCTIVE WAYS of developing appropriate limits and guidelines? The leaders in the field, including Doudna, have triggered an ongoing discussion in the scientific community. For now, the National Academy of Sciences has called for researchers to voluntarily refrain from using CRISPR on human embryos that are meant to come to term, calling such studies "irresponsible" at this point. Such guidelines, while not binding in any legal or regulatory way, can still provide a crucial framework for shaping the way powerful technologies like CRISPR are used. That's especially true in the U.S., where studies not funded by the government are not bound by any federal laws overseeing human-embryo research.

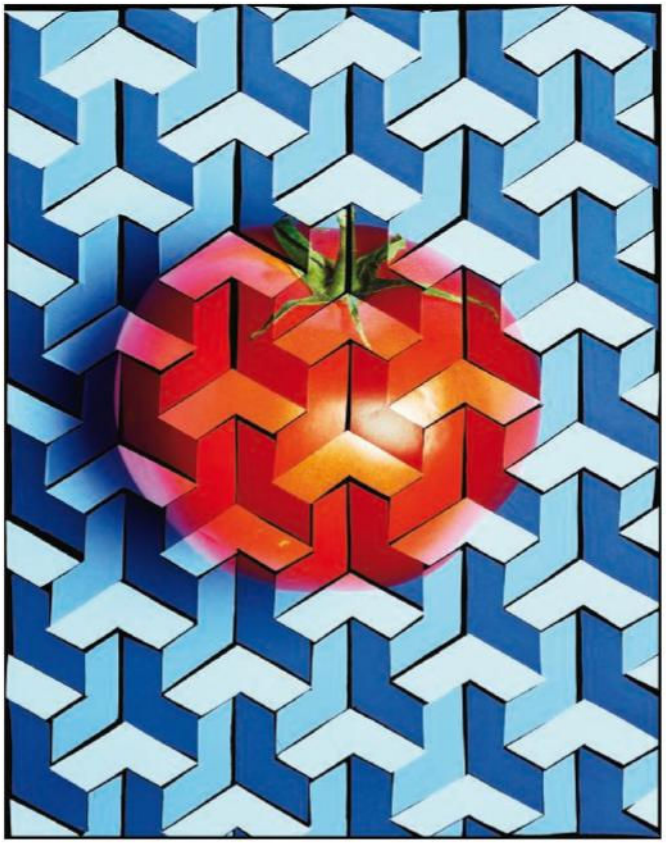
That's likely just a stopgap until some sort of national legislation is passed to govern how the research proceeds and how it is applied—similar to the U.K. law that prohibits Niakan's embryos from being transplanted or brought to term.

FENG ZHANG
He was the first person to demonstrate the use of CRISPR on human DNA. He now holds the patent for the technology, which is being contested.

ON CRISPR'S POWER
"This is a tool that allows us to manipulate the DNA inside of a cell. That's something we couldn't do very well before—but it's something we wanted to do for a very long time."

GRAPHIC BY LON TWEETEN FOR TIME; CHARPENTIER: DOUDNA: AP; ZHANG: BEN GIBBS—THE ELI AND EDYTHE BROAD FOUNDATION

The reason for the permissive legal environment in the U.S. has a lot to do with politics. Nearly every previous attempt to regulate embryo experiments was swept quickly into a polarizing debate over abortion and failed to address legitimate scientific questions about the potential value of the research. "We are probably behind the eight ball on addressing the questions that gene editing raises from an ethical standpoint," says Dr. Ezekiel Emanuel, chair of medical ethics and health policy at the University of Pennsylvania School of Medicine.



Abroad, absent strict rules, more eye-raising studies have proceeded. In 2015, Chinese scientists reported the first use of CRISPR on human embryos, albeit ones that were not genetically normal (unlike the healthy ones that Niakan intends to study), and the blowback from scientists around the world was swift. But the study, as alarming as it was to many ethicists and scientists, shows how eager people are to push the limits of what CRISPR can do.

Baltimore, the Nobel laureate who was involved in the discussions over recombinant DNA techniques in the 1970s, looks to that history for hope that we can navigate the promise and pitfalls safely. Back then, Congress passed a law creating a government panel to review all proposed studies involving the technology until scientific experts were comfortable that individual researchers would use it responsibly. Private companies also signed on to have their work sanctioned by the committee in order to maintain their legitimacy and avoid the appearance of going rogue with a potentially dangerous technology. Decades later, stem-cell science forged ahead despite a federal ban, because private funders stepped in to advance the research rigorously and responsibly. Professional groups of stem-cell scientists also provided guidelines to help shape the direction and quality of studies and nurture the struggling new field.

But for now, the only agreement among experts is that using CRISPR to treat humans—including editing the genomes of eggs, sperm or embryos that are allowed to develop into human beings—is premature.

> 'We are probably behind the eight ball on addressing the questions that gene editing raises from an ethical standpoint.'
>
> **DR. EZEKIEL EMANUEL,** University of Pennsylvania

IN HER CRICK INSTITUTE LAB, Niakan is well aware of the precedent that her work will set for how CRISPR will be used in human embryos for years to come. She points to two cabinets devoted to the paperwork for tracking every embryo that she receives and its journey through the other embryo research she does in her lab. "We are inspected on a constant basis," says Niakan, referring to the U.K. regulators. "They want to make sure the embryos are being used for this specific research project and that they are traceable from the time they enter our facility to the time they are used in the project. They also check that the people who donate them are given the proper informed consent about the research."

So she is proceeding—carefully—with that first sanctioned edit of a normal human embryo, hoping to learn about the earliest steps in human development. By selectively snipping out genes that previous research suggests might be important in helping early embryos thrive, she can come up with a list of genes that all healthy embryos need. When she splices out each gene in question, the DNA will attempt to repair itself. She knows the repairs will likely fail since the disruption is so dramatic. The gene will no longer be able to make whatever contribution it has to the embryo's development, setting off a chain reaction that will prevent the embryo from developing further. But from that failure new knowledge will be acquired—knowledge that would be "technically virtually impossible" to get without CRISPR. What she learns could help prevent miscarriages and help more couples struggling with infertility to start families.

That's what keeps Niakan focused on completing her groundbreaking CRISPR experiments—and intent on including the public in the conversation. "I think it's important to be transparent and to be open about why we are picking certain genes and why we are doing this study. Most scientists don't do that. But in this case, I want them and the public to appreciate the logic of what I'm doing," Niakan says. "I hope everybody working on CRISPR now and in the future will be that transparent." ◻

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Rugby? Yes, Rugby

Carlin Isles and his "rocket shoes" are making the U.S. an unlikely contender ***By Sean Gregory***

TEAM USA HEADS TO THE RIO GAMES THIS SUMMER with a chance to win something that would seem impossible for a bunch of Americans: an Olympic medal in rugby. Their cause has been bolstered by the rise of 26-year-old Carlin Isles, one of rugby's emerging worldwide stars. But if the team succeeds, they can also chalk up an assist for YouTube.

A month before the 2012 U.S. Olympic trials, Isles, then the 36th-ranked sprinter in the country, says he was searching YouTube for clips to help him hone his running technique. Then he stumbled across a video of a rugby player speeding downfield, converting a "try," the sport's rough equivalent of a touchdown. The clip showed the "sevens" version of rugby—a faster game played with seven players to a side, instead of the traditional (and more plodding) 15. And the field looked wider than a football field, giving a speedy runner ample room to race past defenders. "Look at all that open space," Isles remembers marveling. "I can do some damage here."

Isles began Googling everything he could about rugby, and one point in particular stuck out: in 2016, rugby sevens would be a new Olympic event. His head filled with thoughts: What if I became the world's fastest rugby player? What if I could actually make the Olympics, secure sponsors and make a real living? "I decided to make it happen," says Isles.

Remarkably, he did. In just four years, Isles has gone from rugby neophyte to potential Olympic phenomenon. Dubbed "the man with the rocket shoes" by one analyst, Isles heads into Rio in the strange position of being hounded by fans in rugby hot spots like New Zealand but barely recognized in his own country.

Such are the contradictions of excelling in a sport beloved around the world yet little known in the U.S. The English-born descendant of soccer and forefather of American football, rugby has been growing far beyond its traditional base in Western Europe and its former colonies. Chinese e-commerce giant Alibaba, for example, just announced it would pump many millions into developing the sport in China as part of a broadcast deal with World Rugby, the sport's global governing body. The goal: get 1 million Chinese to play over the next 10 years. Membership in the African rugby confederation has grown from six countries in 1986 to 32 today, and according to one study, 80% of the continent's players are under 20. And seven times more Brazilians watched the 2015 rugby World Cup than the 2011 event. But in the U.S., the game has been slow to catch on beyond college campuses and East Coast prep schools. The men's national team, known as the Eagles, has never been ranked higher than 14th worldwide.

Change, however, is on the horizon. Over the past decade, American rugby officials have made a concerted effort to court football players, sprinters and other athletes with translatable skills—a push that coincided with a burgeoning college sevens league whose championship is televised

Isles, who ran track and played football in college, attracted NFL attention. But he stuck with rugby to chase Olympic gold

PHOTOGRAPH BY JEFF WILSON FOR TIME

by NBC Sports. "We want to get more crossover athletes to play our game," says Nigel Melville, CEO of USA Rugby. "The gene pool of athletes is much bigger here, no? We want to take advantage."

In Isles, who is also trying to qualify for the U.S. track-and-field team—a long-shot bid for an incredible "double" at the same Olympics—America's rugby boosters have a model for their strategy. A clip showing Isles dashing past some of the world's best players, titled "Carlin Isles. Olympic Dream," has nearly 7 million YouTube views. Former football players like Zack Test, Perry Baker and Nate Ebner, who has interrupted his NFL career to focus full time on playing Olympic rugby, have embraced the more nimble sevens game. The U.S. sevens team is now ranked sixth in the world, and its backers are betting that the game's fast pace and hard hits will resonate with the hundreds of millions of Olympics viewers, making rugby a breakout hit—and Isles its breakout star.

"Carlin is one of the first global celebrities to come out of sevens," says Brett Gosper, CEO of World Rugby. "He's the face of America's ambitions in the game."

ISLES SEEMED DESTINED for a far different life growing up in northeast Ohio. With little family stability, he and his twin sister Tambra were homeless and hungry at times—they even remember having to eat dog food for sustenance. "It was dry, I'll tell you that much," Isles recalls over dinner at a San Diego steak house near the U.S. rugby team's training center. At 5, the twins entered the foster-care system. Isles says he fought frequently, often to protect his sister. During this time, he says, he was sexually abused by an older girl, an incident he's never talked about publicly before. "You feel timid," Isles says. "You feel ashamed that someone might look at you different." Like many children subject to abuse, he began to fear he might repeat the pattern himself, because he had no one to help him understand what behavior was normal and what was abusive. Now, he says, "I want people to know they're not alone."

Life dramatically improved for the twins when they were adopted at age 8 by Starlett Isles, then a social-services worker, and her husband Charles, a factory foreman. Settled in Jackson Township, Ohio, near the Rust Belt city of Massillon, Isles became a track and football star in high school and played both sports at Ashland University, where he set school records in the 60-m dash and as a kick returner. But Isles' grades slipped, and he left school during sophomore year. He felt stuck. "Looking in the mirror, and knowing you're not where you're supposed to be, man, it's painful," Isles says.

Eventually Isles connected with a Texas-based track coach and moved to Austin in 2011. His times improved, but not enough to qualify for the 2012 U.S. Olympic team. That's when he stumbled across rugby on YouTube and reached out to Melville, the USA Rugby CEO, telling him he wanted to play. Melville advised Isles to go to Aspen, Colo., where he could play on a club team and learn the game.

Four days later, with $500 to his name, Isles drove from Austin to Aspen, crying for most of the ride. "I'm like, What are you doing?" he remembers. "If this doesn't work out, bro, you are screwed."

HIS FAMILY AND FRIENDS thought Isles was crazy. Perhaps—but he was placing his bet on an ascendant sport. Since sevens secured its spot on the Olympic program in 2009, participation in all forms of the sport has almost doubled, to 7.73 million players, according to World Rugby. Women's participation has increased fivefold, to almost 2 million. According to the Sports & Fitness Industry Association, the number of U.S. rugby players more than doubled, to 1.35 million, from 2008 to 2015. And this year, USA Rugby sanctioned a new pro league.

The Olympic spotlight can only help. "The action is very fast-paced, very quick," says Michael Johnson, a four-time Olympic gold-medal-winning sprinter, who says he has noticed a growing number of rugby players at the speed and agility clinics he runs across the country. "It would seem to suit what the younger generation of sports fans are looking for. When people watch it in Rio, they're going to be pleasantly surprised."

Isles has ridden that wave. When he first got to Aspen, he slept on a coach's couch and worked as a flower deliveryman. But by the summer of 2012, his speed and potential were enough for the national team to bring him to the team's Chula Vista, Calif., headquarters to train. He was soon shining in international tournaments.

His quickness caught the attention of the NFL's Detroit Lions, which signed Isles to its practice squad at the end of 2013. Rugby, it seemed, had served its purpose as a potential path to millions in the NFL. Yet Isles chose to stick with rugby, once again stunning those who know him best. "We know that people who play football do really well," says Starlett Isles. "We want to see our last name on a jersey. Are you kidding me?"

But rugby is starting to pay off. Isles has signed sponsorship deals with Citibank, Nike, P&G, Red Bull and California Almonds, and says he makes six figures per year. And though Isles, who has a year-old daughter with his girlfriend, says he still grapples with the traumas of his childhood, he's bringing relentless confidence to his future. "You haven't seen nothing, man," Isles says as he digs into a rib eye steak. "I still feel like I'm at an amateur level, in a sense. But once I keep tapping into that layer of zone, and keep breaking those barriers and those walls down, be ready." ◻

DAVID BECKER—GETTY IMAGES

HERE'S THE PITCH

WHERE DID RUGBY COME FROM?
According to lore, in 1823 a student at the Rugby School in Warwickshire, England, picked up a soccer ball and started running with it, inspiring the fundamental action of the sport.

WHAT ARE THE BASICS?
The sport combines elements of soccer and football. An offense attempts to advance to a goal line; the defense tries to tackle the ballcarrier. It's high-contact, with little padding. You can pass to avoid a hit—but only backward.

WHAT IS SEVENS?
In traditional rugby, 15 players take the field on each side. In sevens, each team fields seven players, leading to more exciting open-field dashes. Halves are, yes, seven minutes long (instead of the traditional 40). Olympians will play rugby sevens.

WHO'S FAVORED TO WIN GOLD?
Fiji is ranked first in men's sevens. Australia tops the women's standings.

Time Off

'IN TRYING TO PREPARE HIS CHILDREN FOR EVERYTHING HE MAY HAVE PREPARED THEM FOR NOTHING.' —PAGE 60

TELEVISION

For *Mr. Robot*, the devil is in the details

By Eliana Dockterman

Malek plays Elliot, a hacker tortured by psychological demons

RAMI MALEK HAS TAKEN A beating—or at least it certainly looks that way. It's a sunny spring day in Brooklyn, and he's on a break from shooting a scene for his show *Mr. Robot* that's left him in impressively bad condition. He fiddles with the contact lens that creates the illusion of a streak of blood in one of his eerie, saucer-like eyes. A makeup artist touches up one of his lesions. Malek points to his bruised face. "He's still battling demons," he says of his character, a hacker named Elliot. "It hasn't turned up roses in Season 2."

The same can't be said for USA's *Mr. Robot,* returning July 13 after becoming last summer's most surprising breakout hit. It's a dark thriller about a coder (Malek) with a drug problem who's recruited by a mysterious figure who calls himself Mr. Robot (Christian Slater) into joining a hacker group bent on taking down the 1%. The show won two Golden Globes—Best Drama and Best Supporting Actor (for Slater)—putting USA, a basic-cable network best known for sunny procedurals like *Burn Notice,* in the awards race.

Part of *Mr. Robot*'s appeal is that it looks like little else on television, from its diverse cast of characters—Malek is Egyptian-American, and the show's hackers include a hijab-wearing Muslim woman and an Asian trans woman played by actor B.D. Wong—to its chilly cinematic style. The show

TRUNK ARCHIVE

PHOTOGRAPH BY ERIK MADIGAN HECK FOR TIME

even earned approval from Edward Snowden, who lauded its authenticity in an interview with Fusion.

That's high praise for series creator Sam Esmail, who's obsessed with accuracy, from shooting in real New York City neighborhoods—Chinatown, Queens, Coney Island—to using actual code onscreen. Esmail enlists experts in coding, politics and economics to consult on hacking and its ramifications. Spookily, *Mr. Robot* has predicted several real-life hacks before they happened, including the Ashley Madison data dump. That's made the show popular with real hackers like the group Anonymous, though that comes with its own pitfalls: the cast members say they've nearly all been hacked.

It's all close to home for Esmail, who was once suspended from college for a failed attempt at hacking himself; he went on to launch a tech startup before becoming a writer and director. *Mr. Robot* was born in part from a frustration with the kitschy way Hollywood portrays the Internet, all binary digits and glowing tubes. "It always bothered me as a viewer when movies and shows gloss over the details," Esmail says. So the beginning of the second season, which reckons with a financial collapse caused by the hackers, introduces an FBI agent hunting down the cybercriminals (Grace Gummer) and imagines the physical consequences of such an event. "Garbage would be piling up on the streets," he says. "That would be one of the first cutbacks."

"I've never experienced this level of preparation and attention to detail," says Slater. "When we have a shot of [a QR code] that you can scan with your phone on the screen, I recommend everyone scan it because it will lead to some clue." Those details, the actors say, help make the world more authentic, so they can better get in their characters' heads. "When you see, from the top down, how much everyone cares, that makes an impact," Malek says. "Sam gets performances out of me that no director ever has before."

How *Robot* hacks hacking

1

Real code. Most movies and TV shows that show coding use green screens to add the code in postproduction. But one of *Mr. Robot*'s writers types real code into a computer that shows up on Malek's screen in the scene so he can react to it in real time.

2

Real coders. Esmail employs coding consultants on his set, who carefully fact-check every script.

3

Real characters. Esmail's characters are low-gloss and rough around the edges. "It's a stereotype, but hackers are brilliant and antisocial," he says.

Esmail originally wrote *Mr. Robot* as a feature-length film, but the cinematic grandeur of the first season of *True Detective* convinced him that television was the right format. He already has four or five seasons plotted out: "The big reveal at the end of Season 1?" he says. "That was in the first 30 minutes of the movie version." The show's twists evoke *Lost,* one of Esmail's favorite shows—though many fans believe *Lost* failed to stick its landing. "I'm past the point of worrying if people will be satisfied with the ending I've always had in mind," says Esmail.

But where *Mr. Robot*'s story ends is beside the point. The show has tapped into universal anxieties about how our devices isolate us while making our darkest secrets vulnerable to skilled strangers. Are vigilantes like Elliot doing good or just generating chaos when they hack to reveal important truths? The answer may depend more on the viewer's politics than the show's. "It's polarizing, politically," says Malek, "which is not something TV really does." ◻

TELEVISION

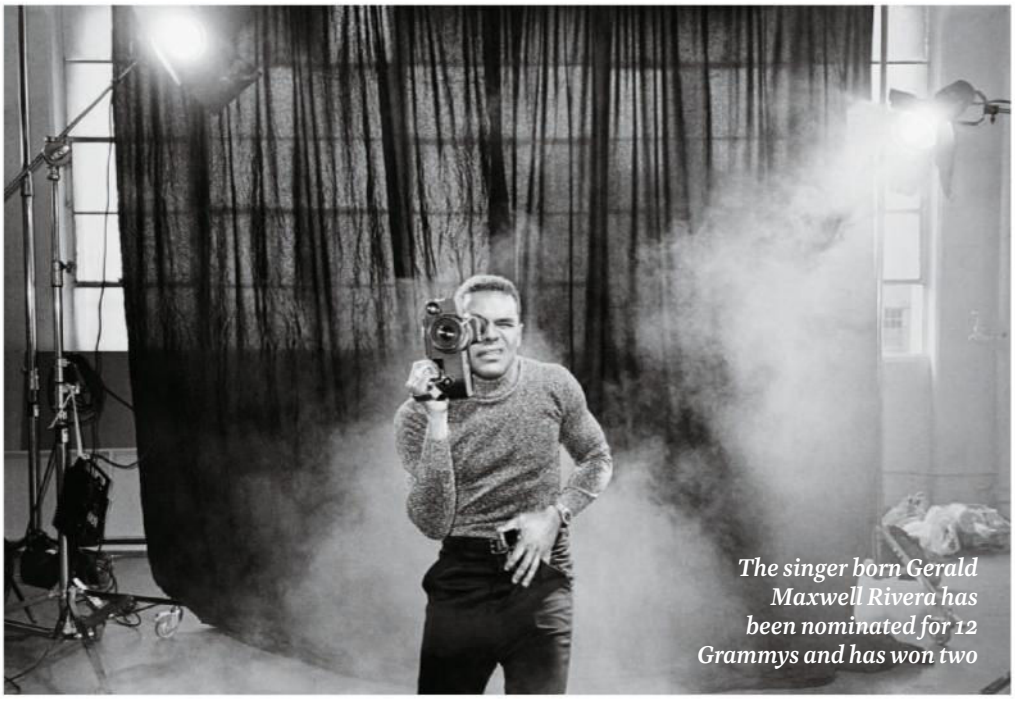
Freed, but still yearning to escape in *Thirteen*

"I ATE FROM THE CAN—NO spoon," Ivy Moxam tells the investigators who are trying to find out more about the decade-plus that she spent in captivity. She speaks with matter-of-fact grimness: "We had to earn the right to a spoon. I never did."

BBC America's new limited series *Thirteen* explores both Ivy's ordeal—like Brie Larson's character in *Room,* she was kidnapped as a teen—and its repercussions. Switching from subdued to rageful, actor Jodie Comer convinces you of both Ivy's fears and her feral side; when her mother bakes a cake, Ivy digs into the batter, smearing it into her unkempt hair. She's disinclined to tell the truth about the years she spent locked away, even though she could help solve a new kidnapping case. But she eventually, thrillingly, breaks out of inertia. Depicting Ivy becoming a part of the world post-trauma is *Thirteen*'s considerable accomplishment.

—DANIEL D'ADDARIO

THIRTEEN *airs Thursdays at 10 p.m. ET on BBC America*



The singer born Gerald Maxwell Rivera has been nominated for 12 Grammys and has won two

MUSIC

R&B star Maxwell returns, with a sultry, timeless groove

By Jim Farber

THE R&B SINGER MAXWELL WON'T NAME NAMES, BUT HE can't hide his frustration with a certain defining pop star. "You're a tall, beautiful woman with the hair and the wind machine and you're singing about being the baddest girl in the world?" he says. "This is your ego talking. And I don't believe ego connects with creativity." It doesn't take a pop scholar to guess the identity—are you listening, Beyoncé?—but he hardly needs to pin the critique on any one person. From the multitudes of "female empowerment" singers, like Taylor Swift and Katy Perry, to self-absorbed hip-hop stars like Kanye West and Drake, Maxwell says, "They're not speaking in terms of vulnerability, of fear."

Which only makes the sensitivity and nuance of Maxwell's new album *blackSUMMERS'night,* out July 1, that much more notable. A little more than 20 years after the release of his debut, *Maxwell's Urban Hang Suite*—which, along with the first albums of Erykah Badu and D'Angelo, spurred the neo-soul movement—he shows exponential innovation, integrating jazz, indie rock and folk to create his own progressive soul. His new music may be more aggressive than his airy, early pieces, but it remains braggadocio-free, a rare quality from one of R&B's top sex symbols.

Maxwell's relative humility has been a factor since *Urban Hang Suite,* when his face didn't appear on the album's cover. (On the new album, he hides his face in his hand.) "I'm not trying to market myself," he says. "I really care what you think about the song." He cares so much that he spent seven years working on the new album, nearly matching the eight years it took for him to release 2009's *BLACKSummers'night*. He faults "full-on anxiety—just wanting to live up to what I've done before" for the long gaps. "It's like chipping away at a rock," he adds. "My friends are like, 'Stop chipping! You're taking away from the thing you're trying to make!'"

The delays haven't kept his fans from snatching up anything he records. Each of his five albums has gone platinum, yet he has determinedly kept his operation small. Unlike the pop singers who employ as many as a dozen writers on a single song, he still writes almost all of his songs (under the pen name MUSZE) with longtime collaborator Hod David. The two met back when the Brooklyn-raised singer worked as a waiter at the downtown New York City restaurant Coffee Shop. He also eschews superstar producers, co-producing every album himself with David. "I don't have a machine," he says. "I've always been into the whole mom-and-pop thing."

At 43, one of music's great lover men has never married. ("My family has a bad track record of being able to be in really successful relationships.") Yet he writes about love with an awe that suggests divinity. The new song "III" name-checks Michelle Obama as his ideal woman. "When I think what he went through as a President and what it took for her to be there for him, there's nothing greater," he says.

As an artist, he seeks similar fidelity. "I always ask myself, 'Is this something Marvin would do? Is this something Sade would do?' From the start, I asked, 'Can I sing this song at 80?' That's something most people do not ask themselves at 22 or 23. But music should last. To me, lasting is everything." ◻

THE NEVER-ENDING STORY OF MAXWELL
After an eight-year silence, Maxwell released 2009's *BLACKsummers'night*, top. Seven years later he has delivered *blackSUMMERS'night* with no hint as to when we might hear *Blacksummers'NIGHT*.

MR. ROBOT: USA; THIRTEEN; BBC; MAXWELL: COLUMBIA RECORDS

HISTORY

An American underclass is up for discussion

By Lily Rothman

THESE DAYS AMERICA CAN'T WAIT TO talk about class. In recent years, both financial crisis and stasis have prodded the nation to look hard at its systemic inequalities—even though a classless society is a foundational myth of the U.S. Just how fantastical that myth can be is the subject of Nancy Isenberg's new book, *White Trash: The 400-Year Untold History of Class in America*. Though she puts one group under her microscope, her message is classless.

Isenberg, a professor of American history at Louisiana State University, has written an important call for Americans to treat class with the same care that they now treat race. Key to her argument is the idea that elite whites have long seen poor whites, who would seem to be part of the long-dominant race in the U.S., as an entirely separate type of person. Inborn social class should be anathema to the American Dream, but it proves both evident and enduring.

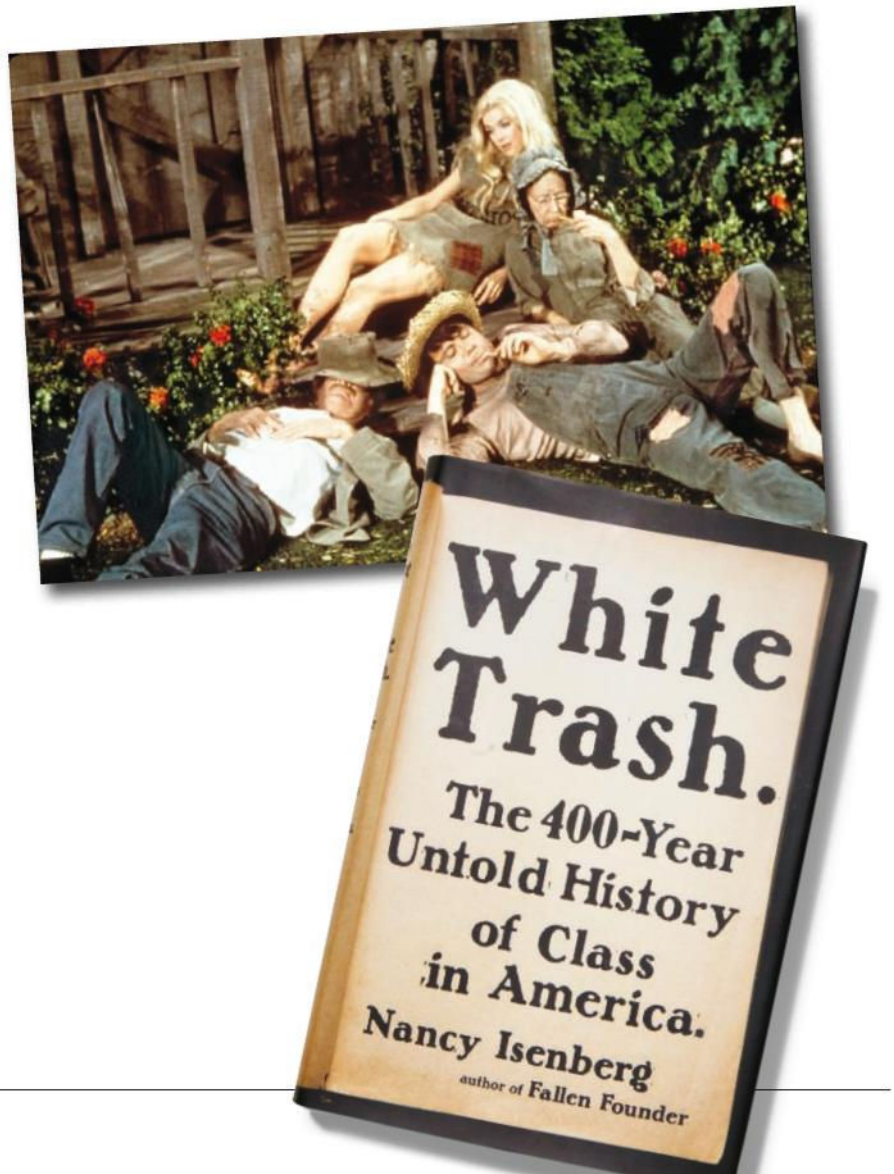
In the earliest days of the nation—long before the first recorded use of *white trash* that Isenberg found, in 1821—educated men borrowed metaphors from agriculture to show that some bloodlines were worse than others. The upshot: class was seen as a genetic trait and thus largely inescapable. Born white trash, stay white trash, have white-trash babies.

Poverty, social worth, industriousness and intelligence were all, like race, in the blood. It's no coincidence that the history of white trash is tied to the antebellum South, where slavery's racial oppression coexisted with an oppressive class system. It was only the Depression, Isenberg argues, that put an end to the idea that the poor were different from good, middle-class Americans—or rather, showed that good, middle-class Americans could quickly become poor.

In the years after, even as love of the "common man" turned toward heroes like Elvis Presley, whom Isenberg sees as an icon of white trash made good, social divisions endured. In fact, she posits that the popularity of many touchstones of trashiness, like *The Beverly Hillbillies*, came from celebrating stereotypes while highlighting the gap between *us* and *them*. It's in this era that Isenberg finds her most incisive point, with a 1949 remark by an Australian visitor: "Voters accepted huge disparities in wealth but at the same time expected their elected leaders to 'cultivate the appearance of being no different from the rest of us.'" The country has long talked a big game about equality, but walking the walk? No.

Isenberg's argument is convincing, but there are a few places where her information falls short of satisfying the curious reader. For example, she refers frequently to the stereotype that white-trash people are "clay eaters"—but if that label is based in fact, as it seems to be, why would the phenomenon happen? (Perhaps people were driven by mineral deficiencies. I had to look that one up.) If questions about such details distract from the more important inquiries, that would be a shame. In the months since Isenberg would have finished writing this book, U.S. class divisions have become a central issue in the presidential election. Her work may well help that focus lead to progress. ◻

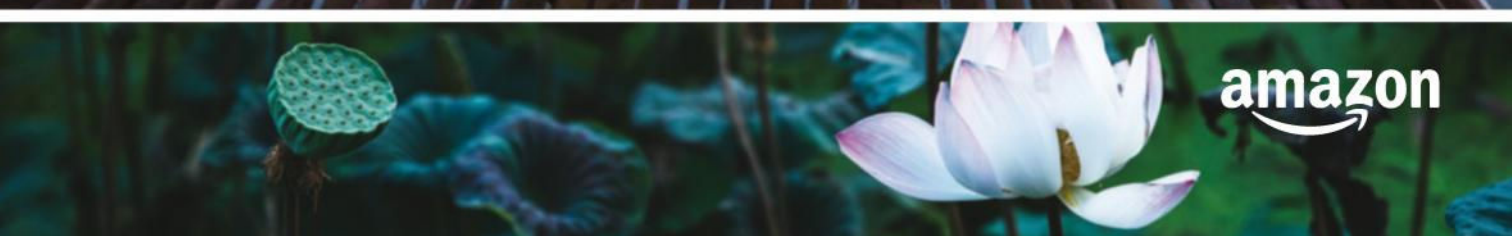
CULTURE CLASS
The Beverly Hillbillies traded in "mockery, not admiration," of white-trash archetypes, Isenberg writes



THE BEVERLY HILLBILLIES: EVERETT

#haveKINDLEwillTRAVEL

TONLE BATI, CAMBODIA V. RATNER, *IN THE SHADOW OF THE BANYAN* @AMAZONKINDLE



TIME PICKS

MOVIES
Hunt for the Wilderpeople (June 24), the highest-grossing locally produced film in New Zealand, tells the story of a tough foster kid who teams up with a 60-something grouch to survive in the bush.

MUSIC
On **Bat for Lashes'** haunting fourth album, *The Bride* (July 1), singer-songwriter Natasha Khan draws inspiration from her own short film about a bride-to-be, widowed on her way to the altar, who mourns her loss during a solo honeymoon.

BOOKS
In his new novel, ***How to Set a Fire and Why*** (July 5), poet and author Jesse Ball tells the tale of a teenage girl with a dead father and an institutionalized mother whose troubles give way to pyromaniacal tendencies.

TELEVISION
The second season of VH1's sharply funny reality-TV satire ***Barely Famous*** (returning June 29) stars real-life sisters Erin and Sara Foster as D-listers trying to climb the ladder into Hollywood's elite.

New survey brings women into the action of Abstract Expressionism

By Richard Lacayo

IN THE LATE 1940S AND early '50s, when Abstract Expressionism first erupted, life wasn't easy for those who adopted it as their practice. Red-baiting Congress members denounced it as a communist plot. Wary museums refused to show it. And just about nobody was buying it. But to be a woman working in AbEx—to use the shorthand term—required dealing with other kinds of marginalization, condescension and worse. Postwar abstraction became so identified with theatrical machismo—as the realm of hard-living, hard-drinking men like Jackson Pollock and Franz Kline—that you pretty much had to show your testicles at the door. Some galleries refused to represent women. Press coverage tended to employ terms like *lady artist,* making it sound as if painters as vital as Joan Mitchell and Grace Hartigan were embroidering doilies. Even when Pollock's formidable wife Lee Krasner produced a canvas that deeply impressed her teacher, the fabled painter Hans Hofmann, his highest compliment was an insult: "This is so good, you would not know it was done by a woman." Ouch.

Some of those women were eventually recognized as among the most important American painters of their time—and others might be due for a second look. These are the takeaways of "Women of Abstract Expressionism," an indispensable show at the Denver Art Museum (DAM), where it will remain through Sept. 25, before traveling to Charlotte, N.C., and Palm

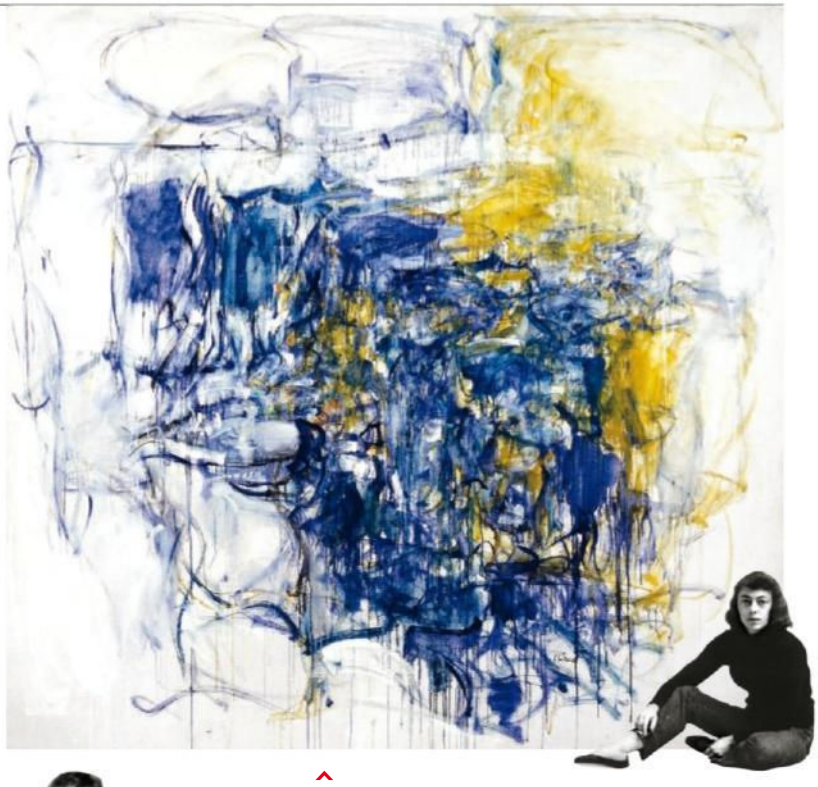
MARY ABBOTT *One of six less familiar names in the show, Abbott was often inspired by landscape*

All Green *(1954)*

ALL ARTWORKS COURTESY DENVER ART MUSEUM (4); KRASNER, MITCHELL, DE KOONING: GETTY IMAGES; ABBOTT: COURTESY MCCORMICK GALLERY; BARELY FAMOUS: VH1

LEE KRASNER *She made much of her best work after Pollock's death in 1956 freed her from her husband's shadow*

The Seasons *(1957)*



JOAN MITCHELL *One of the few women who earned early critical attention*

Hudson River Day Line *(1955)*

ELAINE DE KOONING *She didn't depict events or landscapes, but made corollaries for their impressions*

Bullfight *(1959)*

Springs, Calif. Organized by DAM curator Gwen Chanzit, it mixes the works of six women with a secure place in art history—Krasner, Mitchell, Hartigan, Elaine de Kooning, Helen Frankenthaler and Jay DeFeo—with six who are less familiar: Mary Abbott, Perle Fine, Sonia Gechtoff, Judith Godwin, Deborah Remington and Ethel Schwabacher. Each found her own path into the AbEx idiom of shallow space, expressive paint handling and abstract imagery on (mostly) large canvases, in works that typically combined deliberate brushwork with risk, accident and improvisation. Once they got there, all of them knew what to do with the business end of a paintbrush.

Take Mitchell as a luscious example. It's impossible to resist the virtuosity of her brushwork and the acute conjunctions of her palette in a picture like *Hudson River Day Line,* from 1955, a canvas in which she wields white like a broadsword, then counteracts it with fine filaments of cobalt blue and yellow. And if some of her pictures ended up congested or unresolved, which they did—well, that happened to Pollock too.

Even the very terms in which AbEx was formulated put women at a disadvantage. The influential critic Harold Rosenberg famously preferred to call AbEx "action painting," with the canvas as an "arena in which to act." It wasn't long before an Abstract Expressionist painting was no longer thought of as a mere picture but as the visible residue of a titanic throwdown between the artist and the cosmos. By those hyperbolic standards, it was easy to dismiss women for producing work that was too "delicate," a description that rarely holds when you look at their work.

There's nothing dainty about DeFeo's canvases, some built from magma flows of thick gray pigment with cinder-block density. Then there's Krasner's rhapsodic panorama *The Seasons,* from 1957, which summons the vegetal succulence of nature in forms that are nothing less than explosive and muscular. And when she hurled the mighty thunderbolt of *Bullfight* in 1959, Elaine de Kooning was not only making a taut and forceful painting, she was announcing her readiness to enter the same ring as Goya, Picasso and Hemingway. Which she did. Olé to that. ◻

Off-the-grid dad Mortensen leads his troops in Captain Fantastic

REVIEW

Father doesn't always know best in *Captain Fantastic*

GOD SAVE US FROM WELL-MEANING HIPPIE PARENTS. In writer-director Matt Ross's *Captain Fantastic,* Viggo Mortensen's Ben is the surviving half of a couple who have gone off the grid, an idealistic dad who's raising six kids in the wilds of the Pacific Northwest with no television or computer in sight. Ben homeschools his brood in everything from the views of lefty activist Noam Chomsky to the art of hunting animals for food. One of the youngest, Zaja (Shree Crooks), is a tiny survivalist whose favored chapeau is a taxidermied wildcat. The oldest is lean, ponytailed Bodevan (George MacKay), an avowed Maoist and zealous yoga practitioner who's poised to follow in his father's pine-needle-cushioned footsteps.

So where's the line between rigid parental standards and possible abuse? *Captain Fantastic* crab-walks tentatively toward that question, and even though its conclusion feels rushed, the movie still works as a portrait of an unorthodox family that's well adjusted in its own odd way. When Bodevan meets a girl he likes, Erin Moriarty's Karin, he embarrasses himself by confusing Dr. Spock with Mr. Spock. MacKay plays the scene beautifully, gallant and lovesick.

Yet it's Ben, so tyrannical in his own purity, whom you feel for the most. Mortensen is such a delicately sentient actor that nothing he does reads as pure caricature. When Ben realizes that in trying to prepare his children for everything he may have prepared them for nothing, it's as if we can see right into his crushed soul. It's also the moment he becomes most human: at some point, all kids have to learn that parents are people too. —STEPHANIE ZACHAREK

> 'To be honest about the climbing scenes, I have a little vertigo. It gets me.'
>
> **VIGGO MORTENSEN**, quoted in *USA Today,* on the rock climbing he had to do for *Captain Fantastic*

REVIEW

History flies free in *Free State of Jones*

THE REAL NEWTON KNIGHT was a poor white Mississippi farmer who fought in the Civil War, only to desert the Confederate Army to lead a group of Union loyalists known as the Knight Company. *Free State of Jones,* written and directed by Gary Ross *(The Hunger Games, Seabiscuit),* is a fictionalized rendering of Knight and his quest, an ambitious, messy sprawl that shouldn't be taken as gospel.

Even so, the movie works as a quasi-historical ramble, thanks largely to Matthew McConaughey as Knight and the quietly valiant Gugu Mbatha-Raw as his second, common-law wife, the freed slave Rachel. McConaughey plays Knight partly as a folk hero striving to better the lives of former slaves, though he's careful not to lay the gloss of purity on too thick: now and then he lets us see the glimmer of opportunism in Knight's eyes. Still, his decency shines through, and it doesn't hurt that the wiry, whiskery McConaughey has the face of a haunted daguerreotype, gaunt and unapologetically human. —S.Z.

McConaughey and Mbatha-Raw as Newton and Rachel

CAPTAIN FANTASTIC: BLEECKER STREET; FREE STATE OF JONES: STX ENTERTAINMENT

CONTENT FROM **SIEMENS**

Innovation Starts Here

The birth of an innovative idea, one that has never been done before, should be a rare occurrence. But it happens all the time, in offices big and small across America. To better understand the sources of innovation, Siemens partnered with TIME to poll hundreds of business leaders across the country on how they find their new ideas, under what conditions those ideas flourish and how they are brought to life.

HOW DO YOU GENERATE AN IDEA?

43% Allowing opportunities to take risk

38% Eliminating constraints

98% Of business leaders think innovation is important

One in three say sustainable energy, digitalization and intelligent infrastructure are high priorities

THE TOP TWO DRIVERS OF INNOVATION ARE

45% Technology trends

47% Customer needs

90% Of business leaders expect to continue digitalization efforts within their organization

THE BEST IDEAS COME FROM

39% The middle out

36% The bottom up

25% The top down

83% Say SMART MOBILITY solutions are important

89% Say SMART BUILDING technology is important

83% Say it is important to implement SMART CITIES in the world

54% Say intelligent infrastructure fuels further innovation

87% Say the best days are ahead

Two in three say their organization is the most innovative it's ever been

To get Siemens' full report, visit time.com/partner/siemens/innovation-starts-here

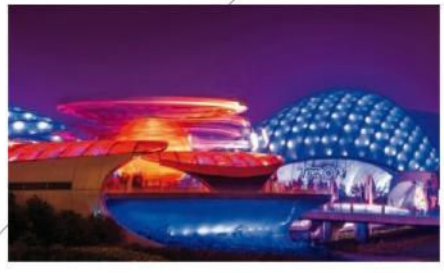
CONTENT FROM **SIEMENS**

The cast of *Hamilton* will **reportedly film two of its live performances** in the near future (though it's unclear how or when the footage will be displayed).

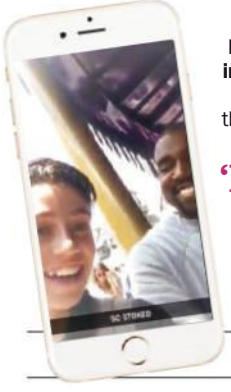
A British woman received a shout-out from Google after her grandson posted a photo of her **using "please" and "thank you" to bookend her searches.**

Some fans are calling Piper—star of the animated short that plays in theaters before *Finding Dory*—**the cutest Pixar character ever created.**

During a recent visit to Hasbro headquarters, viral star Candace Payne, a.k.a. Chewbacca Mom, was **given her own action figure.**



Disney's newest international park, Shanghai Disneyland, features **its first and only ride inspired by *Tron*.**



Kanye West let a young fan **interview him on Snapchat.** When asked how he wrote the song "I Love Kanye," the rapper replied:

'I just thought about what I loved.'

LOVE IT / LEAVE IT

TIME'S WEEKLY TAKE ON WHAT POPPED IN CULTURE

Formerly amicable exes Taylor Swift and Calvin Harris **purged all evidence of their 15-month relationship** from their social-media accounts.

A robot reportedly **caused a traffic jam** in Russia after it escaped from its laboratory while undergoing testing.

A drunk customer left a $1,088 tip for his waiter at Denver's Thailicious restaurant before **returning the next morning to take it back.**

You can now drink blue wine, thanks to a Spanish winemaking startup whose founder is trying to do something "poetic."

A truck carrying deli meats crashed into a truck carrying bread, **creating a "sandwich-like spill"** on a New Jersey highway, per local media; no injuries were reported.

A mouth guard used by Golden State Warriors point guard Stephen Curry is **expected to sell for a minimum of $5,000** at auction.

WEST: GOOGLE; TWITTER; PIPER: DISNEY/PIXAR; CHEWBACCA MOM: HASBRO; SHANGHAI DISNEYLAND; BLUE WINE: GIK (2); ROBOT, TRUCK: YOUTUBE; HAMILTON (2), CURRY, SWIFT, HARRIS: GETTY IMAGES

By Raisa Bruner, Cady Lang and Megan McCluskey

How Orlando resonated in one neighborhood. And inside one house

By Susanna Schrobsdorff

HOW LIBERAL IS MY BROOKLYN NEIGHBORHOOD? LET'S put it this way: I was at a rock concert in the park this past weekend, and vendors were selling combos of parsley fries and kale salad. The local NPR station is the media partner for this music series because, as one of the hosts said on Saturday, "This is a really big ZIP code for us." When we left, there was a huge line for the "bike valet."

Park Slope, as this part of Brooklyn is called, is widely and often justifiably mocked for its elite leftiness and entitled children. Breast-feeding moms are known to take over entire taverns in the afternoons with their expensive strollers and rampaging toddlers. There are notorious online spats like the one after someone posted about finding a "blue boy's hat." How dare they assume it was a boy's! (I say this as a mother who spent years rolling around these streets wearing clogs and feeding my kids a snack called Veggie Booty.)

Even the people who live here make fun of the neighborhood. But since the mass shooting at a gay nightclub in Orlando, I've thought a lot about what it's meant for my kids to grow up here. I don't think they've ever been in a class without gay parents in the mix. We parents—gay, straight, bicultural, biracial—have all bumped along together over the past 15 years from preschool to high school navigating the ordinary tragedies: divorce, layoffs, a mom with cancer. And the joys, of course, too: the middle-school productions of *Macbeth,* the holiday concerts where the kids dance down the aisles. This was our life.

SO LAST FALL, when my older daughter called me from college to say she was now quite certain that she was gay, I think I underreacted. It wasn't entirely a surprise. And I didn't want to make a big deal about it. So I asked if she was dating and how that was, and then we talked about the bus schedule home for Thanksgiving. Since then I've met her supertalented girlfriend, a student in Manhattan, and her girlfriend's mom, and it has felt so ordinary. At least it did until June 12, when 49 people were gunned down at a club called Pulse.

I wept watching photos of the dead stack up on the TV screen. There were so many of them, and they were so young. But while I fumed about the availability of the semiautomatic weapon of war the killer used, my daughter saw it first as an attack on the LGBT community, a hate crime. I agreed with her. But it wasn't until she said, "We're not safe really anywhere," that I really understood what that *we* meant to her. This wasn't just about whom she dates but about who she is. She saw herself in those faces. It took me a little longer.

ILLUSTRATION BY EDEL RODRIGUEZ FOR TIME

After a few days of constant Orlando coverage, my daughter asked me to turn off the news. The horror of it all was too much. It's not as if my kids have been sheltered from the country's painful history of hate crimes. High school students in Brooklyn stage productions of plays like *The Laramie Project,* which is about the 1998 murder of Matthew Shepard, a gay student at the University of Wyoming. Shepard was killed just a year after my girl was born, a long time ago for a 19-year-old. But this was a massacre, and it was happening now. And if it could happen in Orlando, a city with a vibrant gay population, like Park Slope, it could happen anywhere.

MY DAUGHTER SAYS she still can't stop thinking about the mother who went dancing with her son at Pulse and died protecting him. It was Latin night, and 49-year-old Brenda Lee Marquez McCool loved to salsa. When the murderer turned his gun toward her and her son Isaiah, she told her child to get down, and then she stood in front of him. I told my child that I'd have done the same thing. Of course I would. But the idea that she might ever need me to protect her, simply because she was dancing with her girlfriend, is something that I'm ashamed to admit I hadn't even contemplated.

I think about it now, however. On June 26, I'm going to New York City's Pride Week march with my daughter and her girlfriend. It's always a big event, but this year officials are expecting a massive turnout. The police say their antiterrorism forces will keep everyone safe. We're counting on it.

It's not the first time I've gone to the march. Mostly I'd thought of it as a great party. But this is the first time I'll be there as a mother. And it's the first time I'll have any real understanding of what it has meant for this community to be able to march openly and safely through the center of this city, or any city. ◻

Nick Denton The embattled founder of Gawker Media is selling one of the last stand-alone media businesses, to pay its legal bills. Regrets? Just a few

Recently, you had a $140 million judgment against Gawker Media and you declared bankruptcy and put the media empire you founded up for sale. How's your mood? Actually, it's good. It's a bit of a relief. We have a deal in place with Ziff Davis. And separately we'll pursue this litigation with the various plaintiffs who are being backed by [PayPal billionaire] Peter Thiel. And we expect frankly to win all of those cases.

Can you explain the news value of the story that triggered the lawsuit, the Hulk Hogan sex tape? People, journalists, publishers will have different opinions about whether they would have published the eight seconds of grainy sex that was the illustration of the article. I don't want to get into that debate all over again, just to note that a federal court has already determined that the piece was newsworthy.

Hogan's lawsuit against you was bankrolled by Thiel, whom Gawker outed in 2007. Is there a sense in which he's won, now that you're selling? To the extent that the bankruptcy of Gawker was one of his objectives, he's achieved that. But he and his secret scheme have all been exposed. He has been embarrassed. And I doubt that any billionaire will be pursuing precisely this template again, having seen how strong the backlash is.

Why do you think you lost? Was it an issue of tone? The *Village Voice* would have been equally offensive to a jury in Tampa [where the case was tried] 40 years ago, but it would not have been read by people on a Tampa jury. I think the cultural gap between a liberal metropolis like New York and the rest of America is more stark than it has been, and the conflict plays out in Internet media because Hulk Hogan's [Florida] neighbors can read Gawker.

Are there any stories you regret publishing? Absolutely. I don't think we've ever made a misstep as big as, say, the New York *Times*' reporting of Saddam Hussein's weapons of mass destruction. We haven't gotten anybody into any wars. But we've absolutely made mistakes. If you're not making some, you're probably not doing your job.

Is there a media mogul that you identify with? I've always had a surprising amount of respect for Rupert Murdoch and Roger Ailes. I respect publishers and media executives who'll put out good, true, provocative stories and deal with the blowback.

You're a Brit, Murdoch is Australian. Do you ever feel like American journalists are too soft? I'm not the only one who has noted that the American newspapers—maybe because they have been local monopolies—are concerned more about respectability than their British peers. And concerned less about getting the story out. The British press certainly seems more rambunctious than the American newspapers.

You recently got married. Has the fate of the Gawker empire become less central to your happiness? At my wedding, I think I actually said that I always thought I'd be successful, but I never expected to be happy. And I am happily married to somebody who despises news in all its forms. I don't know whether Gawker ever made me happy. I think it made me satisfied.

Do you have a Rosebud? You mean something driving me? Maybe because I was gay, I grew up hating open secrets. Usually if someone's gay, it's a pretty open secret. Their friends know, their family knows, but out of some misplaced sense of decency nobody talks about it. Generally my view is, let's just have it out. The truth will set you free. That's what I believe. —BELINDA LUSCOMBE

> 'I don't know whether Gawker ever made me happy. I think it made me satisfied.'

JESSE DITTMAR—THE NEW YORK TIMES/REDUX

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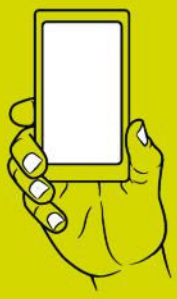

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